

# COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance

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BELOW—Leaf-Type All-Steel Hinges, at left—No. 66 Slam-and-Take-Up Refrigerator Door Lock, at center—No. 85 Rust-Proof Window Regulator, at right.

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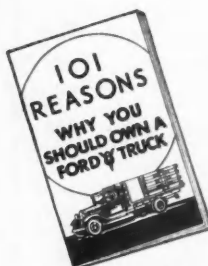
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Stays on the Job... out of the Repair Shop

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## FORD TRUCK PRICES HAVE NOT BEEN INCREASED



# New Truck Sales by Makes

**Registration Figures Show Gain of  
148 Per Cent in First Four Months.  
Production is 162 Per Cent Ahead**

**T**HE big gains in new truck registrations were continued in April. Sales reached a total of 38,882. This bettered the March mark of 33,894, and was a 125 per cent improvement over April of last year.

At the end of the first four months of this year the industry had registered 120,155 new units, an increase of 148 per cent over the same period of 1933.

While no official figures are yet available, indications from the field are that May sales, while considerably better than those for May, 1933, were slightly under the sales for April of this year. The statistician's round-number estimate for May is 37,000. A seasonal recession is likewise forecast for June.

**T**HE outstanding performer in the truck field continues to be Dodge Brothers. The aggressive sales policy of this company, combined with products whose styling struck the popular fancy, has resulted in a phenomenal, 568 per cent increase in sales.

Chevrolet continues to lead the field with 49,797 units sold during the first four months. This is a gain of 131 per cent over last year.

Ford trails the leader by some 15,000

**B**EGINNING with this issue, Commercial Car Journal resumes publication of monthly new truck registrations by makes. This service, interrupted when economies were compulsory in all lines of business, will be a regular monthly feature from now on.

The latest complete figures for the entire United States are those for the month of April. This represents a lag of a full month. The lag is unavoidable because of the huge amount of work involved in getting the registration figures from the 48 states and the District of Columbia.

units but appears to be closing in. Ford's improvement over last year totals 179 per cent. This is not the only evidence that the gap between it and the leader is being closed. There is more significant proof in the fact that while in April Ford was making a 52 per cent

gain over March and reaching a total of 13,167, Chevrolet suffered a loss of 62 units, the April total being 15,050 as compared with 15,112 for March.

International Harvester holds fourth place with a gain of 88 per cent for the first four months.

**T**HE big four accounted for 90 per cent of the total new registrations in the first four months, which is a gain over the 85 per cent in the same period last year.

Among the other makers White and Reo made decided improvements with gains of 178 per cent and 154 per cent respectively. At the rate Reo is going it stands a good chance of taking sixth place away from Diamond T, which has made an unusual showing during the past 12 months.

**T**RUCK production in April showed a gain of 146 per cent over April, 1933, and about a 20 per cent gain over March of this year. The April production figure was 70,720 units.

Output for the first four months was 223,733, a gain of 162 per cent over the 85,350 produced in the first four months of last year.

## New Truck Registrations by Makes by Months

	Autocar	Brockway	Chevrolet	Diamond T	Dodge	Federal	Ford	F. W. D.	G. M.	Indiana	International	Mack	Reo	Sterling	Stewart	Studebaker	White	Willys-Overland	Miscellaneous	Total
January.....1934	79	91	8,917	406	2,581	120	6,650	15	555	80	2,284	161	289	9	61	98	204	2	301	22,903
January.....1933	47	39	4,884	205	360	52	3,734	12	344	80	983	79	137	12	29	134	207	26	345	11,709
February.....1934	58	81	10,718	420	2,723	121	6,459	9	453	57	2,150	144	339	14	60	109	300	5	256	24,476
February.....1933	41	42	4,645	174	348	58	2,185	1	271	64	1,126	62	151	8	31	152	116	22	210	9,707
March.....1934	64	117	15,112	501	4,154	170	8,642	6	717	61	2,841	145	461	10	67	126	391	2	307	33,894
March.....1933	45	51	4,749	202	489	54	2,037	2	318	77	1,201	55	132	5	32	101	97	24	263	9,934
April.....1934	88	104	15,050	534	4,367	178	13,167	13	839	64	2,729	206	527	4	90	123	494	2	303	38,882
April.....1933	76	97	7,299	362	870	103	4,556	8	644	120	2,021	137	216	12	40	180	81	39	440	17,301
4 Months.....1934	289	393	49,797	1,861	13,825	589	34,918	43	2,564	262	10,004	656	1,616	37	278	456	1,389	11	1,167	120,155
4 Months.....1933	209	229	21,577	943	2,067	267	12,512	23	1,577	341	5,331	333	636	37	132	567	501	111	1,258	48,651
4 Months...% Gain	38	72	131	97	568	120	179	87	63	-23	88	97	154	0	110	-20	178	-90	-7	148

— = decrease.



# Safety Group Snubs Trucks

**National Congress Rejects Uniform Gross Weight Proposal and Okays Substitute Promoting Chaos**



**By GEORGE T. HOOK**

Editor, Commercial Car Journal

**T**HE National Conference on Street and Highway Safety held its fourth meeting in Washington, D. C., last month, and if a lowly pedestrian had strayed into the auditorium of the U. S. Chamber of Commerce Building between the Latin on the ceiling and the Greek coming from the platform he would have had good reason to wonder what it was all about.

Because it remains a fact—although realization of it does not seem to be general—that the conference, while originally designed to promote street and highway safety, is being detoured into byways and alley-ways that have little to do with the original design. It may be that, like Topsy, the safety conference's interests "just grew," but Topsy seems to be expanding into a Kate Smith and is in danger of getting out of hand.

The conference, as it revealed itself in committee and general sessions, has a decided uniformity complex. There were some meek protests about this from the floor, but in this case the meek inherited only a calloused audience.

**T**HERE can be no dispute that the economic benefits of uniform traffic legislation are worth striving for, and that some of the so-called uniform legislation is not unrelated to safety. But it is apparent to many that, under the white flag of safety the conference has engaged in some negotiations which are not only highly controversial but which do not concern safety even remotely.

After 10 years of development perhaps the time is ripe for the conference to critically appraise its accomplishments, its tendencies and its ideals. If these ideals embrace uniform highway legislation, well and good. In that case the conference should begin by changing to a banner which will not misrepresent its aims, and act consistent with those aims.

The important obsession was apparent in the "model" laws discussed, revised and approved, to wit: Uniform Motor Vehicle Administration, Registration, Certificate of Title and Anti-

Theft Act; Uniform Motor Vehicle Operator's and Chauffeur's License Act; Uniform Motor Vehicle Civil Liability Act; Uniform Motor Vehicle Responsibility Act; Uniform Act Regulating Traffic on Highways.

**I**N the latter instance the conference not only ventured into strange waters but picked up a Jonah in the shape of uniform gross vehicle weight recommendations for trucks. The result was violent internal disorder that lasted three days and was subdued on the fourth with a rather silly sedative. Silly

## The Conference Rejected This Weight Proposal

All automotive interests supported the following gross vehicle weight proposal as being in the best interests of uniformity.

The gross vehicle weight of any vehicle or combination shall not exceed either the sum of the allowable axle weights (16,000 lb. on high-pressure pneumatic, solid or cushion tires, and 18,000 on low-pressure pneumatics) or the gross weight dependent upon the length as given in the following table, the lower prevailing:

Length Feet*	Max. Gross Wt. Lb.	Length Feet*	Max. Gross Wt. Lb.
10	35,000	26	46,200
12	36,400	28	47,600
14	37,800	30	49,000
16	39,200	32	50,400
18	40,600	34	51,800
20	42,000	36	53,200
22	43,400	38	54,600
24	44,800	40	56,000

\*Between centers of first and last axles.

The above table is derived from the 700 (L plus 40) formula adopted by the American Association of State Highway Officials for protecting bridges from excessive loads.

## The Conference Adopted This Weight Proposal

Axle loads limited to 16,000 lb. on high-pressure, cushion or solid tires, and 18,000 lb. on low-pressure pneumatics.

Subject to axle load limits, each state shall write its own rules regulating gross weights of vehicles and combinations.

The following proposals were also adopted:

Dimension limits adopted were as follows: Height, 12 ft. 6 in.; width, 96 in. with 6 in. extra allowed on dual tire changeovers; length, 35 ft. for a single unit which is defined to include tractor and semi-trailer, and 45 ft. for two units.

Service brakes must be able to stop the vehicle from 20 m.p.h. in 30 ft. and hand brakes in 55 ft.

Trailers and semi-trailers weighing more than 3000 lb. gross must have brakes on all wheels.

Comprehensive new regulation covering marker lights and reflectors for commercial vehicles.

All cars and trucks must have rear red reflectors.

Flares or approved substitutes must be carried outside city limits.





*Scene at the heated sessions of the Committee on Uniform Traffic Laws and Ordinances, which okayed the gross weights that had the support of all automotive interests.*



*. . . . the conference . . . picked up a Jonah in the shape of uniform gross weight recommendations . . .*

because while declaring that it had nothing to do with safety, the conference preferred a substitute which had nothing to do with uniformity. This reckless inconsistency merits some sort of summons.

The Jonah was contained in a section specifying that the gross weight of any vehicle or combination of vehicles should not exceed 56,000 lb. A range of maximum gross weights was figured out on the basis of the well known 700 ( $L + 40$ ) formula adopted by the American Association of State Highway Officials as a method for protecting bridges from excessive loads. (See accompanying table.) This section also stipulated that the gross weight would be further controlled by an axle load of 16,000 lb. for high pressure, solid

or cushion tires, and 18,000 lb. for low-pressure pneumatics. Whichever method figured out lower would be the controlling one.

**T**HE axle loads, having the support of the Bureau of Public Roads on strictly sound engineering grounds, were unanimously approved along with size limitations of 12 ft. 6 in. height, 96 in. width, 35 ft. single unit length (a tractor-semi-trailer being regarded as one unit), and 45 ft. combination length, two units maximum.

The gross weights, having the support of the same Bureau of Public Roads and on the same grounds, passed the Committee on Uniform Traffic Laws and Ordinances but were attacked in the general sessions. The arguments were that they had nothing to do with safety which should represent the only interest of the conference, and that they failed to take into consideration the variations in highway construction and traffic conditions in the several states. A third argument, one that was obviously unfair but which drew a thunderous mixture of applause and approving laughter, stigmatized the Bureau of Public Roads as supporting the weights because of a bureaucratic interest in legislation which would compel so-called backward states to construct high-type,

costly roads. The railroads whose representatives swarmed all over the place, argued that the recommended weights represented mostly increases and not concessions, that increases meant larger road costs and more roads, and that all meant higher taxes and . . . well, aren't we all against higher taxes?

**T**HE automotive interests presented a united front in support of the gross weight recommendations with the argument that these were in the best interests of uniformity (with which the conference seems to be greatly concerned) and were commendable concessions in that the automotive interests yielded on views previously maintained.

The automotive and railroad factions pitched into each other in the discussion after some state officials, with lofty ideas that the conference's sole concern was with safety, had complained that the issue ought to be discarded because it had nothing to do with safety, and after some neutral interests had proposed a pointless and, fortunately, harmless substitute. The railroads threw their support to the substitute while admitting that it did not affect their ideas of the restrictions that should be imposed.

**A** VOTE (in which no attempt was made to determine whether those voting had a right to vote) killed the original gross weight recommendations and sent the substitute into the drafting committee.

That the question was entirely foreign to minds immersed chiefly in safety problems soon became apparent. The conference had instructed the presiding chairman to pick a committee of five to take up the substitute measure and work it up into something presentable for the drafting committee. The quintet was beyond its depth and the substitute reached the drafting committee no more presentable than it was before.

The drafting committee, it seems, is a power more potent than the conference itself. Judged by the organization chart it should be made up of more than 100 representatives elected by the many interests concerned with traffic safety. These interests are the 48 states, cities with a population over a million, cities split up into six categories based upon population, and 34 vocational groups ranging from women's clubs and traffic judges to railroads and the Interstate Commerce Commission.

The drafting committee is, in effect, the voice of the conference. Nothing the conference does in general session is binding on the drafting committee. The drafting committee has the right to do whatever and however it sees fit. This was emphasized from the rostrum.

**W**HEN the substitute reached the drafting committee, the unfamiliarity of the members with the issue was so obvious as to be pitiful. The city planner, the educator, the parent-teacher, the traffic judge and the insurance representatives cannot be criticized for their inability to weigh intelligently a matter requiring a knowledge of road construction, the effect of impacts and of truck design. So, still unwilling to accept the recommendations of engineering experts the drafting committee washed its hands of the matter by turning it over to a special committee of seven.

The seven came back with these substitute provisions, which were approved by the drafting committee and, of course, by the general session of the conference (it's no joke to speak of them as blank cartridges, as a perusal will reveal):

**S**UBJECT to the limitations prescribed by permissible axle loads (16,000 and 18,000 lb., you remember) the gross weight of any vehicle having two axles shall not exceed (blank) pounds. (Each state to fill in the blank as it sees fit.) This same blankety-blank limitation was made applicable to any single vehicle having three or more axles, and to any combination of vehicles.

A footnote explained the pussyfooting in these words: "In view of the varying conditions of traffic and lack of uniformity in highway construction in the several states, no uniform gross weight limitations are here recommended for general adoption throughout the country." Leaving one to wonder if the safety conference is really interested even in uniformity.

The note called attention to the 700 (L + 40) bridge formula which the drafting committee's spokesman said was so highly technical that he, frankly, had no idea what it was all about.

**I**N connection with the gross weight provision the conference also approved a stipulation that "every motor vehicle operated outside of business and residence districts shall have motive power adequate to propel at a reasonable speed such vehicle and any load thereon or to be drawn thereby."

This, too, drew a note—and a blank. The note, involving a "performance factor," said that "a suggested method of determining whether the motive power is adequate to propel the vehicle and load at a reasonable speed is to require that the vehicle be powered so that it can ascend a grade of (blank) per cent at a speed of not less than 20 m.p.h. A speed of 20 m.p.h. for commercial vehicles is considered reasonable on an ascending grade. The percentage gradi-

ent to be inserted should be representative of conditions within each particular state. In a state of flat terrain a 3 per cent grade should be adequate. In hilly and mountainous territory the grade should be 5 per cent."

Here again no thought seems to have been given to the paradox of promoting chaos with a piece of "model legislation" whose professed aim is uniformity.

**S**OME other changes were made in the proposed uniform legislation which are of interest to the automotive industry and some have little to do with safety. One change would put tire dealers in a class with motor vehicle dealers and wreckers and make it necessary for them to be licensed by the Department of Motor Vehicles. The application for a license must be accompanied by a fee and would be granted if the Department were satisfied that the applicant was of good character and would comply with the laws of the state with reference to the registrations of vehicles and certificates of title. Licenses would be applied for annually.

A new piece of legislation is the Uniform Motor Vehicle Civil Liability Act. The liability limit is set at \$5,000 for bodily injury or death of one person in any one accident, \$10,000 for bodily injury or death of all persons in any one accident, and \$1,000 for damage to property. Guest riders have no redress unless "injury or death approximately resulted from the intoxication or wilful misconduct" of the driver. This section would not be valid in states where the constitution creates a right of action based upon negligence.

Then there's the Uniform Motor Vehicle Safety Responsibility Act. This type of legislation is quite universally referred to as "financial responsibility." The "safety" was dragged in by the heels and while some insurance men did not fail to challenge its correctness, the act was passed unchanged. It provides for proof of financial responsibility that accords with the civil liability limits. Proof may consist of an insurance policy, bond or deposit of money.

The Uniform Act Regulating Traffic on Highways contains many provisions affecting motor vehicle operators. Idling is tabooed by a section stating that no vehicle shall be permitted to stand unattended without first stopping the engine, locking the ignition and removing the key.

Additional provisions are:

A red reflector must be located at a height not to exceed 42 in. at the rear of *all* vehicles. This is in addition to the rear lamp.

Clearance, identification and side marker lamps to the total of a dozen are required on vehicles or combinations

(TURN TO PAGE 53, PLEASE)



*Meeting of the National Trucking Code Authority at Washington. Left to right: Messrs. Arnold, Thompson, Brashears, Schmidt, Rodgers, Bibbins, Lawrence, Clark, Nelson, Jr., Horton, and Loomis. Absent members: Murphy, Gordon, and Alphin.*

## A Check on Trucking Costs

**Cost Formula—the Heart of the Trucking Code—Is Discussed at Special Conference of Operators**

**W**ORK on the very heart of the Trucking Code was begun early this month when truck operators from 35 states gathered in Washington, at the invitation of the American Trucking Associations, Inc., to figure out a cost formula.

After a two-day conference, suggestions were made covering every item entering into the cost of performing motor truck transportation service. These were turned over to a general committee for careful analysis. The committee will develop a composite recommendation which will be submitted to the National Code Authority. Action of the Authority must have N.R.A. approval before the cost formula becomes effective.

**T**HE heart of the Trucking Code is in the section which says that no trucking service may be performed for a revenue less than the cost of performing the service, and that the cost shall be determined in accordance with a cost formula to be established.

At the conference demands for a simple, flexible formula, yet sufficiently rigid to promote stabilization of rates under the Code were voiced by operators large and small. There was unanimous agreement that the one-truck operator should be given full consideration so that the formula might not

tend to operate as a burden upon him.

Sub-committees were appointed to discuss and formulate recommendations dealing with depreciation, items of cost, insurance, taxes, and other related matters.

### Report On Depreciation

**T**HE subcommittee on depreciation, headed by C. S. Reynolds, of Tacoma, Wash., recommended that in making up that portion of the cost formula relating to depreciation the following principles be observed:

"1. A study be made of the various classes of vehicles in the industry on the basis of—

a. Carrying capacity

b. Manufacturer's price of chassis and that an average life be assigned to the vehicles in each class which shall be considered as the basic life upon which depreciation charges shall be based.

"2. That any territorial or natural subdivision of the industry be allowed to depart from the basic life set forth in (1) to the extent justified by conditions peculiar to such territorial or natural subdivision.

"3. That in figuring depreciation and in order to obviate differentials in costs among operators, depreciation be based upon current prices of the chassis new at the time any question is raised.

"4. That a straight line method of depreciation be used, because any other method places a premium on old vehicles. Please note that we suggest to the Maintenance Committee that maintenance might also be figured on a straight line basis over the life of the vehicle.

"Your committee has very carefully considered the mileage basis of computing depreciation and are of the opinion that it is impractical at the present time for the following reasons:

a. that a large percentage of the members of the Industry, especially among the smaller operators, do not keep any mileage records, and

b. that a very large portion of the vehicles are not equipped with mileage recording devices.

"We have, therefore, recommended a straight-line method with the right of subdivisions of the Industry to compensate for mileage differentials by departing from basic estimated life, as set forth in 2."

### Insurance and Taxes Report

**T**HE subcommittee on insurance and taxes, of which Maurice Tucker, South Bend, Ind., was chairman, recommended:

(TURN TO PAGE 38, PLEASE)



# Trucks vs Garbage Wagons

**The Nation Holds Its Nose While  
City Officials Disregard Sanitary  
Removal With Truck Equipment**

**By B. F. HEALD**



collection and disposal of scraps of food. . . . Garbage.

The yearly cost of running this business in the United States is \$72,000,000.

**O**NE-HALF of the people in this country are served by some form of garbage collection and disposal. The other half may or may not be like the Georgia cracker who had a systematic method of disposal "We throw it out the window at 6 o'clock." The first half, however, dump their garbage in cans and forget it, knowing that the can will be emptied periodically, or nearly so. For this major service there is an average per capita charge of but \$1.15 a year.

And it is a major service, as anyone

whose garbage can has been neglected for a week is given cause to know. On the fourth day of neglect the can is so full the cover won't go on; on the fifth day newspaper bundles appear beside the can; and on the sixth day a telephone message sizzles into City Hall demanding action or the reason why.

Each person produces one-half pound of garbage a day. If all the garbage in a city of average population density were to be thrown into the streets, in one year's time all the streets would be covered by a uniform layer of ankle-deep filth. The annual production of garbage in Philadelphia—200,000 tons—would make a pile the size of an average 15-story building.

*Compare this unsanitary method of garbage collection with →*



**A**T 5 A. M. the wheels of a big industry start. At this hour, while most of us are still asleep, fifty-odd thousand city employees stumble through stable and garage doors, checking in for the daily job. Teamsters harness their already fed horses; truck drivers check their gas and oil. . . . The wagons roll out, trucks roll out, and the day's work begins without benefit of steam whistles, codes or Congressmen.

The business of this industry is the



*this sanitary method and you have one important reason for the superiority of truck equipment.*

### **Truck Collection Cheaper** Houston, Texas

#### **Equipment**

30 trucks, capacity 1½ tons each  
14 wagons, capacity 1¼ tons each  
5 dump carts, capacity 1 ton each

#### **Load**

25,500 lb. per day per truck  
6,250 lb. per day per wagon  
5,000 lb. per day per dump cart

#### **Cost of Operation**

Trucks—\$12.75 per day per truck  
Wagons—\$6.50 per day per wagon  
Dump carts—\$5.00 per day per cart

#### **Cost of Collection**

Trucks—\$1.00 per ton  
Wagons—\$2.00 per ton  
Dump carts—\$2.00 per ton

Compiled from 1931 annual report,  
Houston, Texas, by Municipal Index.

**T**HE problem of collecting and disposing of this enormous amount of garbage both cheaply and satisfactorily is one of the most complex with which city officials have to deal. The road to solution has no signposts. A sure-fire scheme in New York would miss fire in Boston with depressing regularity. Each city must study its own conditions and apply general principles with such modifications as become necessary.

The study should be made of actual working conditions not of statistics, which are misleading at best. True, the earnest seeker of facts who goes into the field is presented with certain difficulties; he must get up before dawn and follow the wagon to get the correct timing of collection. An error of 10 minutes between actual time and esti-

mated time multiplies itself into a large number of old-style dollars. Interviewing the driver is not so good—Tony has an expert faculty for volunteering all sorts of information except that wanted for statistical purposes.

**A**CTUAL cost data are kept by few cities. Where they are available, the method of determining them often vary to the extent that they are misleading for comparative purposes. Nothing, for instance, is more misleading than a statement of per capita cost. Philadelphia's yearly per capita cost of garbage collection and disposal is given in the city report as \$0.26. But, since only half of the people in this city are served by municipal collection, the per capita cost for those served is

\$0.52. Furthermore, since there is but one patron, or family head, to every four persons served, the cost per patron is \$2.08, 75 per cent of which is spent for collection and the balance for disposal.

Four factors control the ton-mile cost of collecting garbage: 1. Length of haul, that is, the complete cycle of loading and hauling to disposal point and return. 2. Time of haul. 3. Weight of load. 4. Wages paid to drivers and helpers.

**T**WO of these factors, length of haul and time of haul, are in turn controlled largely by the type of equipment used, a question that should receive far more attention in this country than it does. America, the up and coming, lags seriously behind many other countries in the use of modern equipment. Virtually every major European city has armed its refuse collection forces with motor trucks equipped with special bodies, so constructed that odors and liquids cannot escape, and with automatic lifting trays. This last feature removes the threat of rupture, so prevalent amongst garbage collectors. The time saving and clean collection features of this equipment are obvious.

A few American cities now have motorized garbage collection but the majority still cling to the two-horse team and odoriferous, dripping, fly-infested wagon. No reason, or set of reasons,



New York City garbage collection unit



Garbage collection in Ye Olde Tyme

for this inertia is clearly understandable in view of the uniformly good results already obtained by motorization. It must be assumed that the average city official, upon being approached with a comprehensive plan of motor collection, waves his arms and sadly points to some mysterious calculation purporting to show the large increase in costs.

This solicitude for taxpayers brings tears to the eyes. Extremely touching but unfounded on precedent or fact. Taxpayers have financed, and are con-

tinuing to finance, dead and gone projects that burst into glory but very briefly before going the way of the dodo; they would willingly finance an added expense for maintaining a fleet of modern sanitary garbage collection trucks, were they called upon to do so. Actually, however, the cost of operating these trucks is hardly more than for horse-drawn equipment and in many cases it is even less, as an examination of the tables in these pages will show.

**F**OR example: Utica, N. Y., motorized its collection in 1932, thereby effecting a saving of \$3.37 a ton in collection cost and a saving of \$1.11 in ton-mile cost. These savings, multiplied by a total of 14,000 tons hauled 3 miles in one year, produce a respectful figure indeed; one that will go a long way toward paying the first cost of the new equipment.

Not every city can hope to effect such big savings by motorization; the cost of collection would even be increased in some instances. But in no case is the cost increase so great that this plan deserves a thumbing down from city officials.

**M**OTORIZATION should be urged, even commanded, by everyone having pride in the community in which they live. No effort should be too great, no chance should be missed, in impressing city officials with the benefits

### Trucks Are Cheaper on Ton-Mile Basis

#### Cost of Motor-Drawn Collection \* Lexington, Ky., 1928

<b>Upkeep</b>	
Tires and tire repairs for 3 trucks	\$ 432.86
Gas and oil	1,082.33
Repairs	580.96
Miscellaneous expense	64.03
½ wages of automobile mechanic	991.00
<b>Total cost per 3 trucks per year</b>	<b>\$3,151.18</b>
Cost per day per truck (300 working days)	\$3.50
Depreciation and interest	.83
	<b>\$4.33</b>
<b>Wages</b>	
Wages, driver	\$3.58
Wages, 2 helpers	6.33
<b>Total wages</b>	<b>\$9.91</b>
Cost per day per truck	4.33
<b>Total cost per truck per day</b>	<b>\$14.24</b>
<b>Cost of Collection</b>	
1 truck, 6 tons, cost per ton	\$2.38
Length of haul, 3 miles, cost per ton-mile	\$0.80

#### Cost of Horse-Drawn Collection \* Lexington, Ky., 1928

<b>Horses</b>	
Hay, feed and bedding, 5 horses, 1 year	\$1,344.54
Horse shoeing and harness repairs	233.00
Wages, stable man	1,000.00
<b>Total cost per 5 horses, 1 year</b>	<b>\$2,567.54</b>
Cost per horse per day (300 working days)	\$1.71
Depreciation and interest	.08
	<b>\$1.79</b>
<b>Wagons</b>	
Repairs, grease, incidental expense	\$337.93
<b>All Equipment</b>	
Cost per day per horse	\$1.79
Cost per day per wagon	.36
Wages, driver	3.00
	<b>\$5.15</b>
<b>Cost of Collection</b>	
1 wagon, 2½ tons, cost per ton	\$2.06
Length of haul, 2 miles, cost per ton-mile	\$1.03

\* Roy V. Sherman, Prof. of Political Science, U. of Akron.





*In the modern incinerating plant garbage is burnt to its irreducible minima in these huge furnaces*

of sanitary motorized refuse collection.

Disposal of garbage is a distinct problem in itself—has been a problem since the earliest days of civilization. A king may toss gnawed chicken bones over either shoulder with perfect aplomb, but someone has to attend to the final disposal, whether by fire or feeding to animals—methods that are considered good even today.

**T**HERE are five general methods of disposal: Feeding to hogs; tipping (on the land) and dumping (at sea); reduction; incineration; fermentation.

Brief descriptions of these methods follow:

1. Feeding to hogs is still used by many cities but of late years has tapered off sharply because of the low price of pork, complaints of odors and the depreciation in land values adjacent to the municipal hog farm.

2. The primitive method of tipping garbage on the land is no longer practiced in urban areas. Tests made of residual garbage buried two years show that it still emitted an obnoxious, poisonous gas through self-formed vents in the earth. Unburied garbage is perhaps better left to the imagination.

**D**UMPING at sea has also lost favor. New York, which formerly dumped all its garbage, is discontinuing this practice because of the many complaints received from shore resorts—Long Island to Maryland—to

*Garbage dropped through this hopper feeds the furnaces below it*



the effect that large amounts of refuse was being cast up on the beach. In 1926, when the city made an attempt to prove this beach litter was caused by ships unlawfully dumping their garbage within the three-mile limit, over 7000 sealed bottles, each containing a return post-card addressed to the city engineer, were released at the established dumping grounds. Many of the post-cards were mailed in from the Atlantic seaboard and others from European coastal points after an interim of from four days to seven months. Definite trend of tidal currents was not proven, partly owing to prevailing easterly winds at that time and partly because the bottles floated so much higher in the water than garbage.

3. The process of reduction may be simply described as cooking and pressing to extract the grease. The garbage is first picked over by hand and all

material other than foodstuffs removed to be later classified, baled and sold. After the garbage has been cooked and the grease extracted, the pulpy residue is dried and sold as a base for commercial fertilizers. The grease goes into the making of shoe polish, red oil, glycerine and cold cream.

**M**ORE and more cities are turning to incineration as the most economical and satisfactory method of garbage disposal. The uniformly low cost and cleanliness of operation has brought this practice into high municipal favor. Reports from over 100 cities using garbage incinerators give an average disposal cost of \$1.35 a ton.

5. The system of fermentation, invented by Dr. Beccari in 1914 and used throughout Italy since that date, has met with but little success in this coun-

try. A Beccari plant consists of a number of cubical cells. Raw garbage is placed in these cells on a series of trays, 2 ft. in depth. Hydrated lime is added, bacteriological action takes place, and at the end of 35 days the residual humus is removed and sold as fertilizer.

The relative merits of these methods have been argued to no definite conclusion.

**A** PAINSTAKING survey of the confusing mass of testimony offered by the experience of over 300 towns and cities, as published in annual reports and other public documents, leads this writer to the following conclusions:

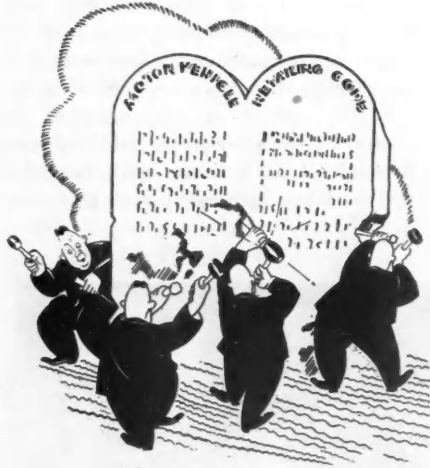
1. There is a final economy in the motorization of garbage collection equipment. 2. The most satisfactory, economical and sanitary method of garbage disposal is by incineration.

# Dealers Chisel Code But . . .

**Used-Car "Shopper" Finds 37 Per Cent of Car Dealers Are Chiseling. A Lesson for Truck Dealers**

**By GEORGE W. CONNOR**

Formerly of Better Business Bureau



## A Word or Two About "Shopper" Connor

**W**ITH a background of automotive and general sales and advertising work plus experience as a Better Business Bureau investigator, Mr. Connor set out to get an answer to the question "How is the dealer code working?"

Using several different used cars, he found almost universal enthusiasm for the code and a very general desire to live up to it.

Dealers, he says, want to see it work, but many of them seemed to believe that they are almost forced to chisel in order to sell cars because nobody seems to know how to curb violators.

Although recognizing that 100 per cent compliance can never be attained, he believes prosecution of a few dealers would be beneficial.

**A**FTER "shopping" 38 dealers, I can get from \$40 to \$60 more for my 1932 V-8 Fordor Sedan than the figures printed in the N.A.D.A. Official Used Car Guide, either directly or indirectly from 14 of those dealers. If you call all of those dealers "chiselers" (which I don't), that's just about 37 per cent of the total.

I can have \$50 to \$75 "free service" if I buy a new Auburn, Ford or Oldsmobile.

If I become "a little pressed" for money when any of my installments fall due, know a very nice Ford dealer who said he would "help out on one or two of them" with his personal check.

I have a \$3.50 fountain pen that I can sell for \$60 to one dealer who has been "wanting a pen just like that for a long while." And—oh, yes—I almost forgot to say that he, too, was more than mildly interested in selling me a Terraplane and taking in my old car at "not one cent more than the code allowed."

**I**'LL just throw this one in for entertainment. I didn't see it, but a dealer told me how a competitor of his lost a \$20 bet to a chauffeur. It seems the chauffeur's employer told him to go and buy a Cadillac, and remarked, patronizingly, that the chauffeur was a

"sucker" if he didn't make \$20 for himself on the errand. Well, sir, that Cadillac dealer, so the story goes, flew into an indignant rage at the mere mention of a "bird dog commission," or the splitting of a salesman's commission. Then he laid a real \$20 bill right on the floor and bet the chauffeur all of it he couldn't jump over it. Now, wasn't he a sap?

**A**NYWAY, let's continue. Twelve dealers out of 38 couldn't allow me a nickel more for my used car than the "\$354" in their "Bible." Yet, every one of them (the dirty dozen) knew somebody who would buy my car immediately—without even looking at it—for from \$400 to \$425. And what made the whole thing more bewildering was this: Seven or eight of those birds who knew where they could sell my car for \$400 to \$425 "sight unseen," had cars just like mine standing on their used car

floors and none of them seemed to have thought of selling one of their own cars to those hot prospects that were so anxious to buy my car at \$46 to \$71 more than the book value.

And why were they so secretive about these transactions? It couldn't be known that they were helping me to dispose of my car. Probably I wouldn't have gotten suspicious myself if one dealer, who finally tore up my card under my nose and told me he didn't do business with "chiselers," had not flatly refused to "find a buyer for my car" when I suggested it, saying: "That's just one more way in which we *don't* chisel our code." I admired that bird and if I'm ever in the market again he can have my business.

**A**NOTHER thing about these "hot" used car prospects disturbed me. Quite a few of the salesmen who called them up in my presence were so familiar.

An Oldsmobile salesman asked me if I would close for \$60 more than the book value, and when I agreed he went to the telephone and I heard him say: "That you, Mary? Bill there? Well, listen. Just tell him I've got a car for him. 1931 Nash, \$250. Okay." Then he explained to me that it was not convenient for the prospect to come over and see the car, but if I signed the new car contract on the basis of the \$60 "chisel" of the code book figure, everything would be "jake."

**O**NLY last month I read in *American Mercury* how hard "Henry" makes it for Ford dealers. According to that story, there must be days when some of them can't save a nickel. Yet, I found one who had more dough than Henry ever suspected one of his dealers of having I guess. He's certainly a big-hearted fellow, and he's for the code. But, he just couldn't see me buy  
(TURN TO PAGE 20, PLEASE)

# Trading Losses Drop 78%

**Loss of \$39.12 Per New Car Sold Falls to \$8.49, Survey of Philadelphia Metropolitan Area Shows**

**By LEON F. BANIGAN**

Editor, Automobile Trade Journal

**I**N the Philadelphia metropolitan trading area, embracing some 375 distributors and dealers, and embracing a cross section of city and country territory, a quarter of a million dollars—to be exact, \$247,327.29—SHOUT their praises for the dealers' code.

Dealer gross used-car loss has been reduced by that figure during the first four months of 1934 as compared with the period of 1933.

During that same period, the average used car gross loss of the dealers was reduced from \$39.12 to \$8.49 per new car sold.

But even those figures don't tell the whole story of the dealers' improved condition.

The savings in gross losses enjoyed by the dealers amounted to \$30.63 a car. Assuming that the dealers collectively salvaged \$30.63 per car on the 11,767 cars sold this year, the total saving would be \$360,423.21.

**T**O Harry E. Cardoze, Jr., Code Commissioner for Pennsylvania Code Administration Zone No. 1, embracing the Philadelphia metropolitan area, goes the credit for having produced these eloquent facts concerning the remarkable reversal of conditions for the first four months of operation under the code.

While it is possible that other factors, including improvement in general business conditions in the territory, may have contributed to the general betterment of dealer conditions, the dealers themselves believe that the code is responsible.

If the improvement revealed by the survey in the Philadelphia territory were sustained nationally, it would mean that the automobile dealers of the United States reduced their gross loss on used cars for the first four months of 1934 by the impressive amount of \$24,700,000.

In view of the fact that there has

## *Something for Truck Dealers to Expect*

**F**IFTY-TWO passenger car dealers in the Philadelphia metropolitan area, who sold 2,613 new cars in the first four months of 1933, had a used car gross loss of \$102,321. The same dealers sold 3,481 cars in the first four months of 1934 and had a total used car gross loss of only \$29,587.

Used car gross loss per new car sold, first four months of 1933, \$39.12.

Used car gross loss per new car sold, first four months of 1934, \$8.49.

Applying the same ratio of saving to the dealers of the United States, the used car gross loss reduction effected in the first four months of 1934, compared with the similar period in 1933, amounts to about \$24,700,000.

been considerable unrest in the dealer ranks, especially during the last 60 days, because of failure on the part of NRA and their code authorities to "spill the blood" of those whom they have suspected of "chiseling" their code, it is interesting to note that the improvement in gross used car losses of a quarter of a million dollars was made in the same territory in which George W. Connor, the "shopper," disclosed conditions which indicated the probability of 37 per cent of the dealers "chiseling the code." This article is published on the opposite page.

Mr. Connor did not accuse the 37 per cent of the dealers of "chiseling." He did not call them "chiselers." But the facts he collected, while not legally incriminating, supported that possibility.

**T**HE actual facts developed by both Mr. Cardoze and Mr. Connor would seem to emphasize this significant



thought, however. No code—even the Ten Commandments—can be enforced 100 per cent. While 100 per cent enforcement is desirable, less than perfect enforcement still is capable of effecting tremendous improvement. When a territory embracing only 375 dealers effects an improvement of a quarter of a million dollars in the used car loss situation in four months, with the possibility of 37 per cent of those dealers "straying away from the straight and narrow once in a while," that is a significant fact.

**I**N developing the facts upon which this article is based, Mr. Cardoze sent a questionnaire to about 375 dealers in his zone. He asked how many cars each dealer sold in the first four months of 1933 and in the first four months of 1934. He also asked each dealer what his gross loss on used cars for the corresponding period amounted to. In addition to that he asked the dealers to comment on any change in the situation and to definitely express their opinion as to whether the motor vehicle retailing code was responsible for any changes that might have been



noted. The survey covered the following counties in Pennsylvania: Philadelphia, Chester, Delaware, Montgomery and Bucks.

At the time the analysis was made there were 52 comparable reports available. Those 52 dealers, representing practically all makes of cars, reported that they had sold 2613 new cars in the first four months of 1933, and 3481 new cars in the first four months of 1934. Total used car gross loss of the 52 dealers in the same period was \$102,321 in 1933 and \$29,587 in 1934. This produced an average used car gross loss for the 52 dealers of \$39.12 in the 1933 period, and \$8.49 in the 1934 period.

Applying these ratios to the total number of dealers in the territory—375—would give a used car gross loss of \$347,229.12 in 1933 as against \$99,901.83 in 1934. New car registrations for those counties show sales of 8800 new cars in 1933 as compared with 11,676 new cars in 1934.

**TWENTY-TWO** of the dealers reporting showed an actual profit in their 1934 used car operations. The highest profit reported for the period was \$1,568, and the lowest was \$14.

The highest used car loss reported for 1933 was \$11,314 on a 62-car operation, and for 1934 was \$4,411 on a 400-car operation. The dealer who showed the highest used car profit of \$1,568, sold 178 new cars in the period. In 1933 he showed a \$1,234 loss and during the period delivered 103 new cars.

Several of the dealers reporting pointed out that the figures in themselves did not reveal the full extent in the improvement over the corresponding months of last year so far as used car gross loss was concerned because the figures for the first four months of 1934 included substantial losses incurred in selling used cars accepted in trade in 1933 at much higher figures.

**OF** the 52 dealers reporting, all but one of them believed that the improvement was due largely to the code.

Most of the comments of the dealers were about as follows:

"Improvement in the code is entirely up to the salesmen and dealers. The remarks to prospect and car owners will either make or break the code."

"Believe it could be improved by a better education of both public and the dealers who still do not understand. Loss this year was the aftermath of rushing out and making a lot of fool trades before the code went into effect. This is the final lesson needed, we should think."

"The auto code has been the salvation of our business and I would rather have it enforced than receive an additional factory discount."

## Give These Dealers a Big Hand!

(From the notes of George W. Connor, author of the article appearing on these pages.)

**ONE** Buick dealer said: "I'd as soon put a bomb under Roosevelt's chair as 'chisel' our code one cent!"

A Chevrolet dealer tore my card up and told me to "get out" when I suggested that he could find a buyer at \$46 above the Code value on my used car.

A Dodge dealer told me he'd be fined \$500 and lose his franchise if he "chiseled" the code.

"We'll pass up a hundred sales before we will break faith with our code authority," declared a Hudson-Terraplane dealer.

A Ford salesman came back three times with additional reasons why I should buy a Ford in preference to any other car, large or small, but he wouldn't budge one penny on the NRA book value. Boy! There was a salesman.

## Dealers Chisel Code But . .

(CONTINUED FROM PAGE 18)

a Ford car and then go home and worry myself sick about the payments. He said: "Let's not dicker about \$50 or \$60. Go ahead and enjoy a nice, new car. If it needs a little *service* during the next *six months*, run it in and we'll take good care of you—at no cost to you. And, if you're a little 'strapped' when the first payment or two come due, come up and see me—er—personally."

And as his thumb flexed my floating rib, he inquired: "Do you get me?"

Then there was another Ford salesman who was "sure" he could find a buyer for my car at \$46 "up." I said, "Well, I hope you find one before May 1, because I want to take the Missus and the kid on a trip." To which he replied, confidentially: "Leave that to Mr. Murphy"—who was the proprietor of that particular Ford agency, only that wasn't his name.

**I**N 38 contacts, I met only one dealer who seemed ready to "chisel" the first time I walked into his place.

Five out of 14 began to show the whites of their eyes on the second call.

To the credit, if anything, of the eight others, I must record that it was only after I had repulsed their "code-pure" advances for the third time that they "weakened."

In justice to the Ford dealers I think I ought to emphasize that while I

mentioned them oftener than any other dealers, I actually called on more of them than any others, with the exception of Chevrolet.

On my shopping score card I placed green check marks for the dealers to whom I gave a clean bill of health, and red check marks against those with whom I was quite sure I could have done a little plain or fancy chiseling.

I notice now that the Ford score reads four red marks out of eight, as against three red marks out of eight for Chevrolet dealers.

The three Buick-Pontiac dealers I called on were, like Caesar's wife, "above reproach."

So were the two Nash dealers, one Cadillac-Oldsmobile dealer, one Studebaker dealer that I visited.

Three Chrysler-Plymouth dealers produced one red mark.

Three DeSoto-Plymouth dealers also showed a record of two to one in favor of truth, virtue and righteousness.

The two Dodge-Plymouth dealers split the record right down the middle, one yes, one no was the outcome.

The same comment might be made concerning the two Hudson-Essex dealers and the two Graham-Paige dealers, because in each case one got a green mark and the other got a red one.

**I**T is unfair, probably, to mention any make of car where only one dealer was approached. But since I've handed "bouquets" to the Cadillac and Studebaker dealers on which I made the (celebrated and much pooh-poohed "one-stop") survey, it probably should be recorded, just for the sake of statistical balance, that there do happen to be red marks against the Auburn and Hupmobile "one-stop survey" victims.

If this were a fairy tale, I'd end it with a moral—but it isn't

And so just let me write in conclusion: I don't think this survey *proves* anything. In fact, I'd be disappointed if it did, because I didn't intend that it should.

**I** BELIEVE that codes, while emphasizing the sounder principles in all businesses, have not changed the moral standards of very many individuals.

Some of us are still chiseling that well-known old code, the Ten Commandments.

It's not what was carved on the tablets for Moses that counts, but what people do about living up to *that* code!

It's not what's written over the signature of Hugh Johnson down in Washington, but what's done in an educational, and—that failing—in a punitive way, to achieve compliance!

Code compliance never has been one hundred per cent since the time of Moses—and probably never will be!

# Ears to the Ground

**Giving You Information Some of Which Is Inside, Some Advance and Some Just Unusual**

## A Pumping Carburetor

**F**OR some time carburetor manufacturers have been playing around with the idea of a unit which will do its own gasoline pumping. The idea, of course, is to eliminate the fuel pump. Holley supplied quite a few to Ford for a while, experimentally, and is reported to be experimenting still. Now another carburetor company, which has been active primarily in the replacement field, has developed such a unit, and is expected to announce it shortly.

## Ventilation Gets a Play

Ventilating systems for truck cabs are at last getting some attention. (Are camel-backs to get the credit?) You probably noticed the system incorporated in the GMC cab-over-the-engine job described in the February issue. Another system has been developed by the Nichols-Lintern Co. (Description promised for July.) Still another system is being experimented with by an eastern truck company that builds its own cabs. The system originates in Philadelphia.

## 20-Cylinder Cam Engine

Nuway Engineering Co. has a 20-cylinder engine which may be built in 300 and 800 hp. sizes, the former weighing 290 lb. and the latter 1000 lb. The engine, generically, can be designated as a cam engine, an idea not entirely new to the automotive field, but never before successfully applied.

## Ring-Shaped and Crankless

The new engine is of the ring-shape, crankless type. The cylinders are arranged in two circles of 10 cylinders each. Between them a large-diameter drum is



**Badger Trailer Corp.'s contribution to streamlining—drop-frame trailer with pointed-front and beaver-tailed body**

mounted on a central driveshaft. This drum was a cam groove cut in its outside periphery. Pistons in each pair of directly opposed cylinders are connected by a single connecting rod, and a roller carried at the center of this rod rides in the cam groove.

## Fuel Oil Converter

It is claimed that the engine can be operated on fuel oil also, by means of a "fuel oil converter" developed by the company. This converter is to be placed on the market shortly. The converter is now in experimental use on trucks.

## Rear-Engined Taxi

This may be a bit out of the truck field, but how many persons have considered the possibilities inherent in a taxicab with engine in the rear? The passengers are farther forward, get better riding, and there isn't so much objection to moving the driver farther ahead as in a passenger car with the same wheelbase. We understand that one truck company is working on the idea. Nothing concrete yet, understand, but it doesn't look so bad on paper.

## An Oil Refiner

Climax Mfg. Co. has an oil refiner for installation on trucks which, it says, "conditions oil while the motor is running." The refining material, known as Climite, "removes sludge and gum forming compounds and other impurities as fast as the oil is contaminated."

## Tip to Fruit Truckers

Experiments of the U. S. Department of Agriculture have shown that treating fruit in cars (truck bodies offer no special problem) with carbon dioxide gas has practically the same effect as pre-cooling in stopping the early development of disease organisms. The treatment is very simply accomplished by placing small quantities of solid carbon dioxide over the load or in ice bunkers in addition to the ordinary icing.

## Higher Engine Speeds

During the next year or two it is quite likely that truck engine speeds are going to go higher. With bearing manufacturers concentrating on the development of bearings which will stand the higher loads which come with the higher speeds, the neck in the bottle promises to be removed.

## New Bearings Coming

Among the larger truck manufacturers Ford led the way by the adoption of bronze-lined bearings in his trucks. Other manufacturers are working with them and several are already planning to adopt them in their next models, if not before. All of these bearings may not be bronze-lined (instead of the usual babbitt)—there may be some zinc alloys, etc.—but whatever the material the bearings will stand up.—A.F.D./G.T.H.



**If you sell live fish you've got to "bring 'em back alive." This operator does it with tanks whose water is aerated by means of the pumping mechanism (Fruehauf trailer behind a Diamond T)**

# Catering to Canines

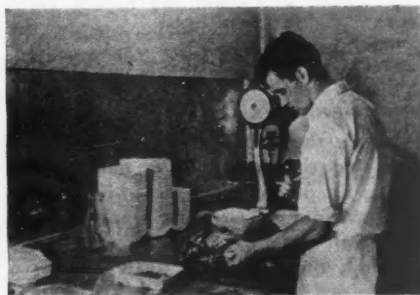
**Trucks Help Dog Lover to Realize Novel Idea of Delivering Special Daily Dinner to Dogs**

**By STANLEY GERSTIN**

**A**LIGHT blue delivery truck came to a stop in the driveway of a home in the suburbs of Philadelphia. The driver leaped out, reached into the rear of the truck, and reappeared with an armful of paper-covered plates. Immediately, pandemonium broke loose. Yapping, barking and the soft pat-pat of animals running. A



Here's where dog dinners are made ↓



First, meat is chopped and ground ↓

dozen dogs, ranging in size from a small poodle to a huge great dane, bore down upon the driver.

It was just a welcoming committee for the dog dinner delivery special!

The same scene was enacted wherever the truck stopped—a hundred times a day. Dog dinners obviously were in high favor, and this observer noticed that the mere presence of a truck electrified the animals with its promise of warm, savory meals. Moist nostrils quivered and tails wagged expectantly.

The motor truck is an efficient and integral part of this dog dinner business

## Here's The Market

**T**HE present United States market comprises about 12,000,000 licensed and 3,000,000 unlicensed dogs. The packaged dog food business is estimated anywhere from 15 to 50 million yearly.

According to a survey made by Major Market Newspapers, Inc., areas where most of the dog food money is spent are New York 10.68 per cent, Chicago 3.4 per cent, Brooklyn 3.09 per cent, Philadelphia 2.5 per cent, Detroit 2.03 per cent, Los Angeles 1.95 per cent and Boston 1.48 per cent. The rest of the money, dogs and foods is scattered.

which took root a little more than a year ago in Ardmore, Pa., and which is now scheduled to bloom in Reading, Pa., Montclair, N. J., New York City, Westchester County, N. Y., Long Island, Boston and Baltimore.

**I**T all started when an insurance man with a yen for dogs (24 of them) looked for an easy and economical way of feeding them without cutting down on vitamins. He bought meat, cubed it for bolting, soaked it in vegetable juices, mixed it with baked bread crumbs and fed it to his dogs. They thrived. Neighbors looked and wondered and asked for the secret. Then they asked the insurance man to fix up a little meat for their dogs while he was at it. The news spread. (It seems dog owners talk about their pets with the same fondness and on the same common grounds that mothers talk about their babies.) Almost before you could say "hot dog!," LeRoy Goff, 2nd., found himself in the dog dinner business with offices and kitchen in Ardmore and later in Oakmont, Pa.

**T**ODAY he operates three ½-ton trucks. The bodies are painted blue with cream paneling, and the name thereon is "Canine Catering Company."



Then the chef tastes . . . while his assistant sorts →



→ and weighs it into 8 and 16-ounce dinners →





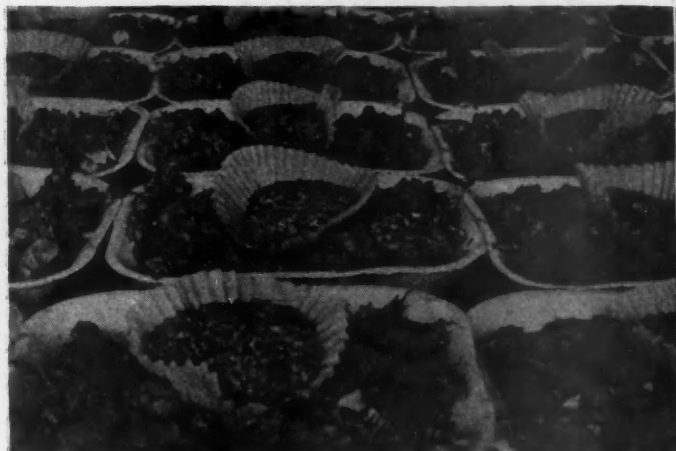
*"... I couldn't bring you your dinner economically without trucks" ... Canine Caterer Goff speaking and posing*

He makes and serves dinners for some 4000 dogs, 30 cats and one raccoon. His trucks stop at the homes of William Wallace Atterbury, William Wistor Comfort, Cornelius Vanderbilt Whitney, Mrs. Isaac Clothier, Jr. (social register names), and hundreds of others. There are in all about 75,000 licensed dogs in and around Philadelphia, and Mr.

Goff hopes to feed a good number of them.

That this dog dinner business is a good one is manifested by the fact that a new, larger plant has been opened and a wholesale dog meat business now takes its place among the potentially great industries of this country. Dog dinners will be made at this plant on

the same scale that Henry makes Fords. Dinners will be served on papier mâché platters (blue plate style to you), packed in Dry Ice, and trucked to all parts of the Eastern seaboard. Light delivery trucks equipped like pie wagons will effect a hurried transfer and swish the dinners to thousands of hungry dogs awaiting them. Deliveries



*Dog dinners made up with "side dish" of breadcrumbs →*



*Delivery is made in light panel-type trucks →*

from the main plant at Oakmont, Pa., to remote distributing stations in other states will be made in hired trucks—for a while, anyway. Operators in other populous areas will actually be in business for themselves, purchasing the dinners processed and portioned out on platters from Canine Catering, but responsible to themselves for sales and deliveries. They will be authorized dealers.

**T**HE average dinner is about a pound a day, although a huge wolfhound or great dane will consume  $3\frac{1}{2}$  pounds of this "fresh food fit for human consumption." "We will make up a dinner to any amount," says dogdinnerman Goff. "Our smallest platter is a quarter of a pound. Very frequently the size of dinner is made up according to prescription from veterinarians who account for a good part of our business. We work with the dog doctor hand-in-hand. He recommends us and we recommend him."

There are four acres of grounds adjacent to the Oakmont processing plant on which the company proposes to operate one of the world's finest kennel and country clubs for dogs—in the near future. The idea is to provide a responsible boarding house and day nursery where owners may leave their pets while away for the season.

**S**EVEN HUNDRED dinners, using 1500 pounds of meat, are served daily, cooked or raw. At the present



### Canine Curiosities

#### Good for Gobs—Not for Dogs

"**W**E use only government inspected beef and lamb," says Mr. Goff, "and it's fit for human consumption. As a matter of fact I sometimes buy meat from the same place that the Philadelphia Navy Yard makes its purchases. I once lost three customers who complained that the meat wasn't choice enough for their dogs—yet the Gobs are fed the same meat regularly!"

#### In Spring A Dog's Fancy . . .

**A**S a lost and found department we are on the job. Calls frequently come in reporting a missing dog, which dinner delivery men generally find chumming with members of the opposite sex somewhere along their delivery route.

rate of growth 150,000 pounds of meat will be used monthly by the end of 1934. With branches operating in other states, meat will be trucked in 1500-pound cases. More trucks and more trucks. Says Vice-President T. R. Brooks, who also looks to deliveries: "Trucking is the life of our business. The trucks are fast, economical, efficient. We send out 100 dinners per load, three loads a day, four times a week. Trucks cover 550 to 750 miles a week at a cost slightly under 1 cent a dinner. It costs about \$12 a week to operate a truck delivering 1200 dinners."

Sixteen people are employed in the business—five make the dinners—and the chef does the tasting. None of the employees are especially fanatical dog lovers, although association with the business has provoked a certain sympathy and interests in the animals.

**A**SKED why food served to dogs in this manner is preferred to the canned food or dog biscuit, dogdinnerman Goff is of the opinion that his fresh meat is healthier and contains more vitamins. "Canned food," he says, "contains only about 20 per cent of meat (usually horse flesh) and the rest is filler. Therefore it takes five such dinners to obtain the same benefits that one of ours would give." Only government inspected beef is used. Dogs may order a table d'hôte or veterinary meal for 14 cents or a Kennel meal for 13

(TURN TO PAGE 70, PLEASE)

*Food for two . . . and food for thought for truck salesmen*



# Governors Throttle Costs

**Department Store Fleet Men Declare Economies Are Spread Over Repairs, Tires, Fuel and Insurance Premiums**

**"H**AVE any of the gentlemen used governors on their vehicles?"

A. D. Little, superintendent of deliveries, Marshall Field & Co., Chicago, put this question to department store fleet men attending a recent convention of the Retail Delivery Association in New York City.

The lively discussion which took place indicated that department store fleets use governors because they are convinced they effect operating economies. These economies are spread over fuel, tires, repairs and insurance premiums. Although there was a division of opinion as to whether the governor was a factor in accident prevention.

Here is the discussion that took place and the opinions expressed on governors:

**W** D. BIXBY, manager motor equipment, United Parcel Service, New York—"We are governing everything, giving the package wagons on ordinary routes 40 miles an hour, and the long distance runs 45. Not with the idea of preventing accidents, however. I don't believe a governor does a whole lot toward preventing accidents. Decreasing the allowable maximum speed will decrease the more serious accidents if you have fast drivers. But I am inclined to think that a governor is just as liable to cause an accident as it is to prevent it. Sometimes when a vehicle is in a tight place, if it is able to speed up it may avoid the accident.

"The speed of 45 miles an hour allows the motor in the average chassis that is bought for package work to turn over at very close to the manufacturer's rating."

**C** S. LYON, vice-president, Motor Haulage Co., Inc., New York—"We put governors on our vehicles to lengthen the life of the motors. These



## Governors Increase Tire Life 33 1/3%

### No Governor

Car No.	Miles
40	
1 replaced at	21,450
2 replaced at	21,450
1 replaced at	24,969
49	
3 replaced at	22,544
1 still on at	27,494
8 tires	Total 184,455
Average miles per tire	23,056

### Governor-Equipped

Car No.	Miles
98	
1 replaced at	25,276
3 still on at	30,022
99	
4 still on at	32,615
8 tires	Total 245,802
Average miles per tire	30,725
Increased life per tire	7,669
Increased life in per cent	33 1/3%

Note: The average life for the tires on the cars equipped with governors should be considerably more than the 30,725 miles shown above inasmuch as seven of the eight tires are still in service.

In addition to the above tire-mileage increase, we have a reduction in repair costs per mile of 43 per cent.

The vehicles are all Model A Fords. Reported to Commercial Car Journal by Marshall Field & Co., Chicago

high-speed, highly sensitive motors have certain characteristics. They have an r.p.m. of 3000, and I know that governors are being used by some operators to bring that down to 2200 or 2500 r.p.m. It was quite well brought out here that we don't put governors on to reduce the accident experience ratio, but to lengthen the life of the engine. The question that I would like to ask is this: Why do we buy an engine that has these salient characteristics and

(TURN TO PAGE 52, PLEASE)





This "Blackboard Bookkeeping System" takes drivers into its confidence

## Cut Costs With Chalk

**Denver Fleet Posts Truck Costs on  
Blackboard and Arouses Drivers to  
Compete in Fighting the Fractions**

**By JOHN J. STAPP**

**A** MOST unique use for blackboards may be seen in the garage of Goodheart's Laundry, Denver, Colo. Fred Doppelmayr, maintenance manager, uses them to keep down operation costs on his fleet of 20 trucks.

Blackboards—and still more blackboards—have enabled him to reduce operation expenses from 1.9 cents per mile average in 1931 to 1.7 cents in 1932, and from that figure to 1.5 cents per mile in 1933. Doppelmayr expects to pull still another fraction of a cent off his costs for this year. So far the average has dropped to one-tenth of a cent less than the 1933 figure. Furthermore, blackboards enable him to keep a closer check on repair work, washing and greasing. This helps him cut shop expense considerably.

**T**HE chief purpose served by the blackboards is to keep all figures out where they may be seen by drivers and mechanics two or three times daily whenever they leave or enter the shop. They are a constant reminder of the im-

portance of the fraction; all may see and help Doppelmayr fight "fractions."

"The old adage about taking care of the pennies and the dollars take care of themselves," said Mr. Doppelmayr, "is brought out in the way we use the boards and the success we have had by keeping these constant reminders of fractions of cents before everybody who has anything to do with the fleet. We find we get results by stressing the little things. For example, suppose a driver has a short stop to make; he may think he can save time by leaving his motor running for just a few seconds. But a couple of such stops a day make 15 or 20 a week or more than 60 a month. This driver is not watching his fractions and he's going to get a lower rating on the blackboard. For the next month, every time he comes in or out, he'll be reminded of the fact that he slipped and thereafter he'll pay more attention to fractions. If he doesn't, at the end of the year he'll see figures that will tell him the story for the next 12 months."

The white figures on the blackboard are a constant reminder to the driver of his performance. So is Doppelmayr. He'll call the attention of each driver to the figures at least once every week. His blackboard system is as follows:

**T**HE blackboard is located opposite the entrance to the garage and divided into three sections. ((See illustration.))

About half of the first section is allotted to the previous year's average gasoline mileage figure and the cost per mile. These figures remain posted for an entire year so that comparisons may be made. The drivers are ranked first, second, third and so on according to their cost showings, the driver with the lowest cost getting first ranking, of course. The average cost per mile includes not only repairs, tires, gas and oil, but a share of garage overhead as well. Since vehicles in the fleet are standardized and travel under similar conditions, this is considered a fair method of judging the drivers, and the

Rank	Driver	Miles	Cost
1st	No 3	18	0.11
2nd	No 15	18	0.12
3rd	No 17	14	0.12
4th	No 16	14	0.13
5th	No 2	16	0.14
6th	No 7	14	0.14
7th	No 9	14	0.14
8th	No 18	14	0.14
9th	No 11	13	0.14
10th	No 12	14	0.16
11th	No 19	14	0.17
12th	No 10	15	0.18
13th	No 6	12	0.18
14th	No 5	12	0.21
15th	No 8	10	0.21
16th	No 1	9	0.21

Truck	Date	Mileage
3	5-9-34	5-9-34
4	5-8-34	5-8-34
5	5-8-34	5-8-34
6	5-15-34	5-15-34
7	5-11-34	5-11-34
8	5-	
9		
10		
11	5-9-34	
12	5-8-34	
14		
15	5-8-34	
16	5-8-34	
17		
18		
19		
20		
21		
22		
23		
24	5-8-34	

Maintenance Manager Doppelmayer gets driver cooperation with chalk

man with the lead-off ranking has legitimately proved himself the head man among drivers.

Comparisons with three previous years are made possible by means of a bulletin board which hangs above the blackboard. At first these figures were kept on a small blackboard but experience showed that the more practical way of keeping them was on paper and under glass.

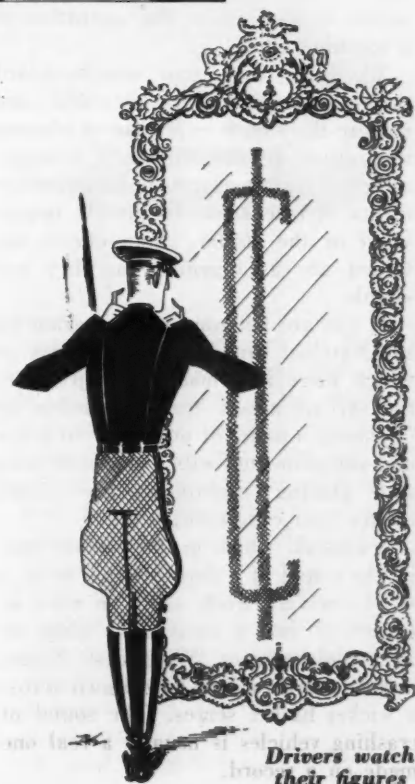
The remainder of this section of the blackboard is used as a bulletin board to keep drivers informed of the things that need to be done to their trucks. The board illustrated, for instance, shows that certain trucks were due in for a grease job at a certain date and others were due in for a brake test.

It should be explained that driver numbers and truck numbers correspond, that is Driver No. 1 drives Truck No. 1, and so on.

The section at the other end of the blackboard records the "mileage per gallon of gas" for each month of the current year. The first column contains driver numbers in consecutive order. Opposite the numbers appear the gasoline mileages for each month of the year. This enables drivers at a glance to see whether or not they are improving their performances.

**T**HE center section of the blackboard is used to keep track of maintenance work to be done in the shop. Truck numbers appear in the first column. The second column gives the date when the truck is due in for a greasing, the third when it is due for an oil change. In the fourth column tire pressures, front and rear, are given to facilitate tire-checking. The last column gives the date when the battery is to be checked.

(TURN TO PAGE 70, PLEASE)



Drivers watch their figures

# Are You Listenin'?

**A Peep Behind the Loudspeaker  
to See How Radio Produces Its  
Realistic Imitations of Trucks**

**S**URELY you've listened at one time or another to a radio program during the course of which some familiar sounds—such as those that come from a truck or a machine shop—were reproduced. If you have, didn't you say to yourself, "That certainly sounds natural. I wonder how they do it?"

Well, many others in the truck business have, and even if you haven't you'll be just as interested as they are in knowing how these sounds are produced in the broadcasting studio.

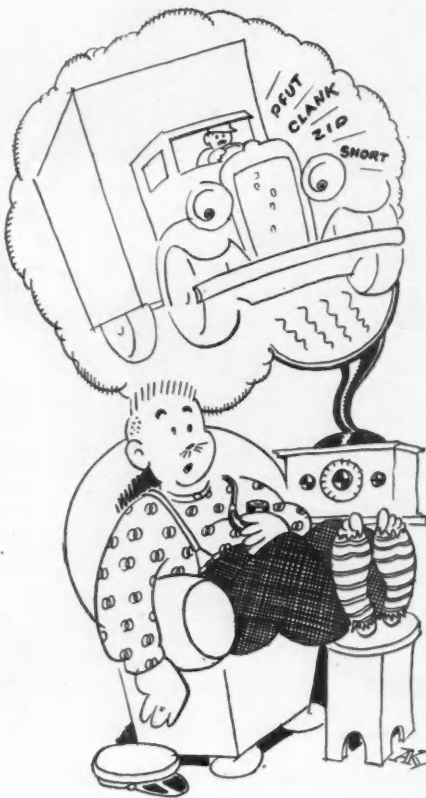
Let's look behind the loudspeaker and find out.

**I**NQUIRING backstage into the mysteries of sound production we learn some interesting facts regarding the manufacture of sound sequence imparting a complete picture of the movements of a truck or the operation of a machine shop.

We learn, first, that sounds heard during a program are recorded, and require the simple expedient of playing the record at just the right moment, although certain sounds imitating movements of trucks are frequently improvised in the studio where effects obtained are as ingenious as they are simple.

If you are listening to a program by the National Broadcasting Company in which there is a machine shop scene, the various noises heard are made by operating a panel of motor-driven gears and supplemented with records of saws and planing machinery—the sound effects man conducting.

A squeak, which to the listener may be the sound of a door closing, or of a slowly moving truck sadly in need of grease, is just a rusty door hinge to the sound engineer. When rusty hinges become scarce, a bass bow drawn across a wicker basket serves. The sound of crashing vehicles is usually a real one made on a record.



**F**OLLOWING sound reproduction technique through an entire scene, this is what happens:

The door of a truck opens and there is a squeak (that's the rusty hinge), and then banged shut (that's the studio door). Next we hear the grinding of the starter (a hand drill turned on a brass plate). The motor starts (an electric motor in the studio or several egg beaters operated by assistants give the sound of purring). Gear shifting is the sound of scraping metal. If there is back-firing, it's a blank .22 calibre pistol shot. In an emergency, a leather cushion smacked against the floor will do. When the vehicle is brought to a halt, the sound of brakes is simulated by a plate glass drawn over nails driven upright into a board. (Manufacturers should object to that one.) Pebbles or coins shaken in a wash tub or tin pan suggest the rattle of an old car or truck,

and gravel sliding down a short, miniature chute does for the sound of loading and unloading.

Simplicity seems to be the keynote in reproducing other truck sounds. When you hear a horn, it's a Klaxon, a vibrator type, or a motor-driven horn muffled in a box with a hinged lid manipulated by opening and closing for faint and loud effects. If the truck is brought to a halt by a policeman's whistle, a whistle is simply blown in the studio. (That's an easy one.) Other true sounds are of running water if the gas tank or radiator leaks; the opening, closing, and banging of doors, and the breaking of windshield glass.



*Armour trio making a delivery—sans trucks—over WJZ. Left to right: Harry McNaughton, Mabel Albertson, and Phil Baker.*

**S**OUND effects technician Harry Saz, operating in the New York office of NBC, says that recordings are





*An array of sound producing instruments in NBC studio during typical broadcast. Triple twin table on right plays three records simultaneously for background effects, street scenes and crashes; air tank is used for bell sounds and escaping air and steam; on the table is a box of cornstarch in which a bowling ball is rolled for the sound of crunching snow. On the left is the portable door you frequently hear opening and closing.*

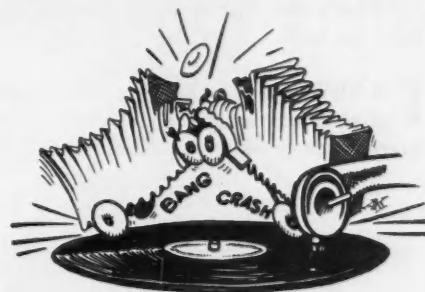
now used in programs featuring trucks when the truest possible sound effects are desired. Studio improvisation is resorted to when presenting comedy skits or informal programs that do not require accuracy.

Records made in action on the scene have greatly simplified sound effects technique for the Columbia Broadcasting System. Sound control and production man Horace Feyhl (Philadelphia station) has a file of records of almost every desired sound. They were made by the Gennet Electrical Transcription people on moving trucks, automobiles, airplanes, trains, in traffic, and on the farm. Sometimes, however, Soundman Feyhl will beat his chest before the microphone in imitation of another fading American, the galloping horse. Occasionally he may be heard to whine, neigh, cackle and bark.

JUNE, 1934

**B**EFORE the days of electrical transcription for the radio, toy trains were in common use and a steam whistle supplied the necessary choo-choo. The chug-chug sound of a motor boat was obtained by scratching a record and playing it. When it came to making the sound of milking a cow, the scene was usually written around; now there's a record of the act with an occasional "moo-o-o" contributed by the cow. The most difficult effect which soundman Saz of NBC had to improvise was that of a submarine plowing its way through a mine field. It was accomplished by drawing a bass bow along the edge of a sheet of metal.

**A**SITUATION that almost became a case for the S.P.C.A. was evoked in the CBS studio in Philadelphia when live chickens were used for a farm



scene. It was necessary to pull the chickens' feathers to make them cackle at the right time. One ambitious chicken, without waiting for the customary cue, escaped from the coop, leaped to the microphone and gave one, long, loud cackle which studio attendants cut short in no chicken-hearted fashion.

When sound reproduction is not according to Hoyle, soundmen trust to the skit and action to suggest the desired effect. So far there is no particular technique for reproducing what the truck driver says when he is stuck in the mud. Maybe just "Zounds!"

# Hard Seats Are Tough Grind

**New Hardened Alloy Inserts Must  
Be Serviced With New High-Speed  
Cutters Revving Way Up to 12,000**

**By HENRY JENNINGS**

**T**HAT cutter bounces around like a ball in a roulette wheel. It didn't even shave the whiskers off this valve seat."

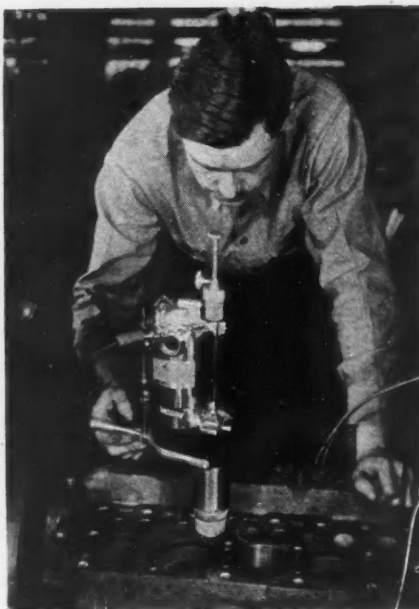
From the way Paul Vogt said this when I entered his shop I knew he was in the deepest quandary of his mechanical career. And mentally I observed that here was another maintenance man who wasn't wise to the fact that valve seats were being made tougher than Mae West's movie roles, and that they couldn't be tamed without the help of new tools.

Paul is an old timer but it so happens that because of the nature of his work and his location (actor's would call it a tank town) new developments don't impress him very much until he bumps head-on into one of them.

It was evident he had bumped when I walked into his shop. He scratched his head and pointed to the cutter.

"That's the first time it has failed me," he said.

**I** KNEW from looking at the truck that it was a late model of a well-known, progressive manufacturer. I



*Hall eccentric seat grinder*

seat. On top of that, I have not adjusted the tappets but once or twice in all that time. I guess this new stuff does not pound down much.

"But how do you figure this one?" Paul continued. "These valves are not seating right. Does the stuff warp when it gets hot?"

**I** FELT that I could assure Paul that the warping he suspected was mostly heat distortion in the cylinder block which pulled the valve guides out of alignment with the seats. Possibly it came from uneven pressure on the cylinder head studs, or more likely still, from worn valve guides. This last despite the fact that the incompressible feature of the valve seats made possible the use of stronger valve springs which reduce valve flutter and give better engine performance at high speed. Stronger springs have also been known to help in the prevention of valve guide wear.

This was acknowledged to be very interesting but the important question so far remained unanswered. What could



*Kwik-Way concentric grinder*

didn't really need to take a look at the valve seats to tell Paul his trouble. But not wanting to be accused of snap judgment, I examined the valve seats thoughtfully. Finally I said:

"Paul, you've struck stellite. And for your information that's just one of the hardened alloys that have become popular valve seat insert materials. The reason why this cutter has been giving you the run-around is because both the cutting tool and the motor are the wrong sort."

**"B**UT why do we have to have such hard seats?" Paul interrupted, and then proceeded to answer the question for himself. "Of course, this truck," he said, "has gone about twice as far without a valve job as any of the previous models, and there is not a pit on any



*Black & Decker vibro-centric grinder*



*Grinding seat with Sioux equipment*

he do about it? The answer was, of course, buy some of the new equipment which is expressly designed to service these seats. I suggested as much to him.

"I suppose you mean some grinding stones and something in the way of higher speed to turn them."

So Paul knew the answer and I filled in the details. Here's what I told him, polished up for publication:

**T**HE speed of the power units averages around 12,000 r.p.m., although a flexible drive is furnished with some

of them, which enables the operator to hook up the grinding stones with a conventional  $\frac{1}{4}$ -in. drill. The speed of  $\frac{1}{4}$ -in. drills varies from 1400 r.p.m. to 2200 r.p.m. While the slow speed operation is probably not as satisfactory as the result when the stones revolve at high speed, it permits the back seats, which are sometimes inaccessible because of cowl or accessory interference, to be refaced with a stone. At least one manufacturer is producing a kit

which includes stones, diamond dresser, pilots and coupling for use on all seats, in conjunction with a  $\frac{1}{4}$ -in. drill.

**B**OTH concentric and eccentric types of machines have interesting ways of preventing the grinding wheel from hogging the metal off the seat and as a result, filling up the stone. One manufacturer instructs the operator to move the handle on a circular motion. This movement keeps the weight of the machine constantly shifting to different portions of the seat. Another lifts the stone at intervals by means of a power-

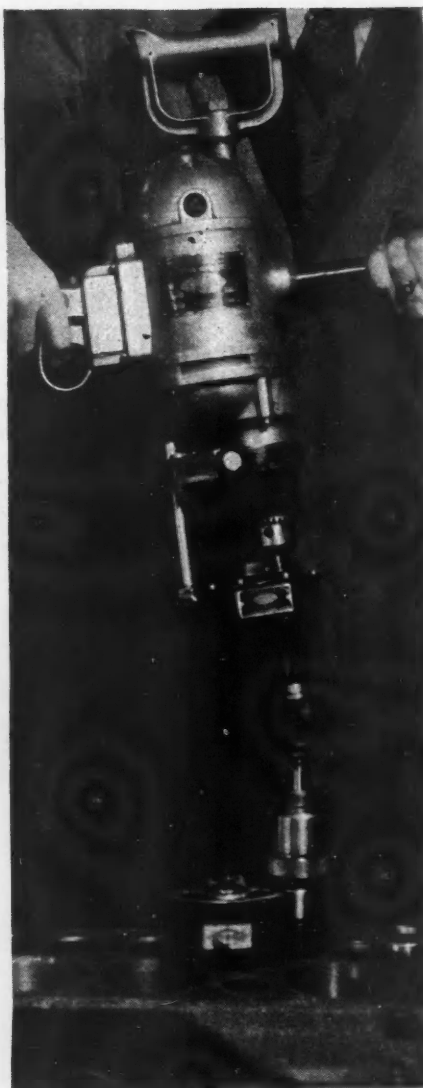


driven cam, while still another has a stone elevator with a micrometer adjustment. It is interesting to know that on the eccentric type the grinding wheel turns about the pilot spindle at 26 r.p.m.

The first step in the grinding operation is to insert the pilot. Some outfits have solid pilots in graduations of 0.001 in. Others use an expanding pilot or a pilot with a taper collar. If the guide is badly worn, it should be replaced because a solid pilot will certainly transmit lost motion and the expanding type may, or may not, lock up in true position.



*Van Norman grinder*



*Sioux cutter for seat insertion*

**W**HEN the pilot is safely in place the grinding wheel is set on it. Pull the trigger and you're off. It takes only a few minutes to actually grind the seat. In production work the operators have reached a workable gait of 50 seats an hour. The stones, if expertly handled, should require dressing on the diamond dresser at intervals of from one to eight seats, depending upon the hardness of the seat material.

Paul interrupted me at this point to say that he did not see why this business of hard seats should be limited to engines that carry them as standard equipment. He was right. It is possible to install them in the older types of engines. A special tool is required to cut away the engine block material and then the hard seat is driven into place. Installing seats is a tricky operation. If they are not tight enough, burned valves are certain to be the result. If they are too tight, cylinder block distortion has been known to crack them.

**A**BOUT the only suggestion I would make to my friend Paul about the operation of the new machine he is going to get, was: Do not apply any pressure on the machine when it is going. Let the weight of the power unit supply the pressure. And above all use a dial gage to measure results. Your eyes, even through bifocals, will not give you a very accurate picture of how a valve seat should look.

Incidentally, the high-speed grinders with a different selection of stones do an excellent job on the seats of the not-so-hard variety.

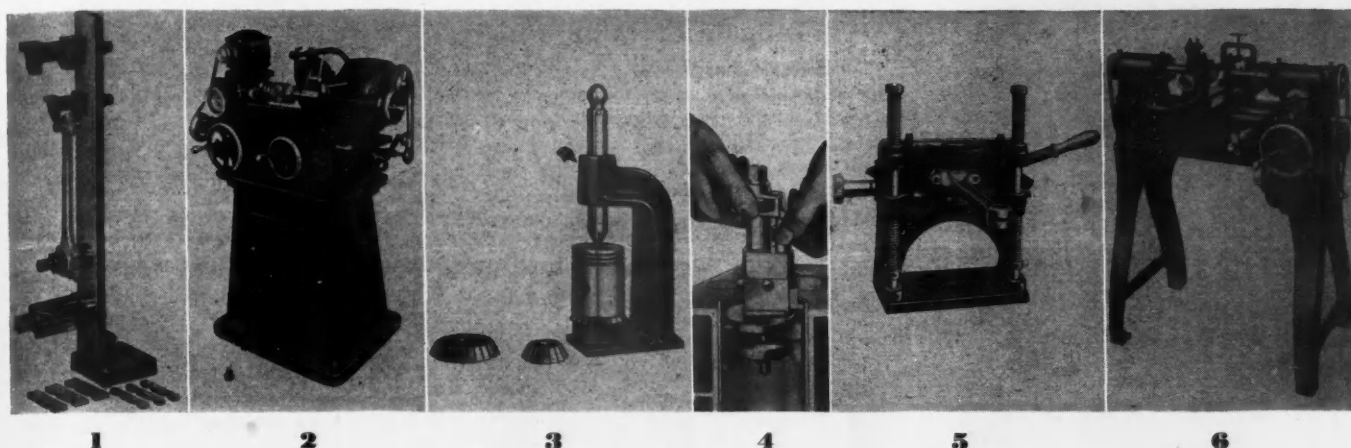
Photos show some high-speed types,



*Checking valve seat for trueness*

# New Products on Parade

**Descriptions of the Latest Items  
Put on the Truck Market by Equip-  
ment and Specialty Manufacturers**



**Ammco's new products in company-front formation—(1) Connecting rod aligner; (2) Piston grinder; (3) Piston corrector; (4) Cylinder-sleeve cut-off blade; (5) Con-rod re-babbiting jig; (6) Con-rod boring machine**

## Ammco Presents:

New tools to facilitate shop work are announced by Automotive Maintenance Machinery Co., 830 West Washington Blvd., Chicago. They are:

### 1. Connecting Rod Aligner

This combination connecting rod aligner makes every necessary test and straightens every type and size of connecting rod and piston assembly. It is a combination of the Ammco models B and L aligners.

### 2. Piston Grinder

The new model P provides straight, round, and cam turning and grinding without changing piston set-up. Handles pistons for all sizes of passenger cars, trucks, buses, and tractors up to 7 in. in diameter and 8 in. in length. Five speeds are available.

### 3. Piston Corrector

A new tool for rechamfering the piston skirt. It assures accurate, permanent centers on pistons before turning or grinding. Handles any piston up to 7 in. in diameter.

### 4. Cylinder Sleeve Cut-off Blade

A special blade for cutting cylinder sleeves to the proper length operates in the cylinder ridge reamer in exactly the same manner as the regular blade which is used for removing ridges.

### 5. Con-Rod Re-Babbiting Jig

Accurate and rapid re-babbiting of all con-rods is provided in this new jig requiring only two minutes per rod to refinish any con-rod. It comes in two models with

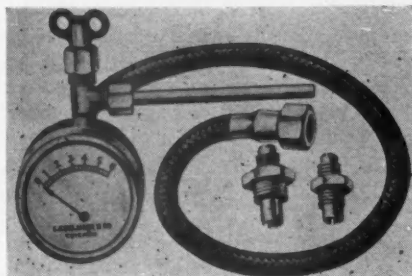
ranges of 1½ to 2 in. and 1½ to 3 in. in diameter respectively.

### 6. Con-Rod Boring Machine

The model CR High Speed Two-Spindle Connecting Rod Boring Machine, as it is called, is a production tool that enables any shop to rough bore, finish bore, and cut oil grooves in any con-rod bearing, all in one set-up. Six to eight jobs an hour are assured with this machine which handles all rods up to 22 in. long and with 1½ in. to 3½ in. diameter bearings.

## Edelmann Fuel Tester

A simple device for testing the complete operation of fuel pumps is announced by E. Edelmann & Co., 2332 Logan Blvd., Chicago. It will not only indicate whether a sufficient quantity of fuel is flowing, but also determines if the pump is



producing too high pressure. It is furnished complete with gage and a full set of adapters. Catalog on request.

## Drill-Centric Valve Seat Set

A drill-centric valve seat grinding set has been developed by Black & Decker Mfg. Co., Towson, Md., to meet the need of shops unable to make major investments in valve-seat grinding outfits. A ¼-in. drill is used as the power unit, and a flexible coupling is provided which fits the socket of the stone sleeve. There are two drill-centric sets. The first consists of diamond stone-dressing stand, flexible coupling, stone sleeve and kit. The second consists of diamond stone-dressing stand, flexible coupling, stone sleeve, two vibro-centric stones, two self-centering pilots, and box.

A ¼-in. special electric drill has also been designed with increased motor power of 33 1/3 per cent over other models.

## Utilite Flare

This flare is designed to aid motorists make minor repairs on the roads as well as serve as a warning signal to approaching cars. Utilite flare is manufactured by The Merdis Corp., St. Louis, Mo., does not contain a powder base, is neither affected by wind nor rain, and burns in excess of half an hour. It retails for 25 cents.

## Midget Oil Burner

This complete heating unit, which burns oil and oil drainings, for garages and service stations (it can be used in any stove), is manufactured by the Midget Fuel Oil Burner Co., 215 Newark Ave., Jersey City, N. J. It contains no moving parts or wicks.

(TURN TO PAGE 34, PLEASE)

## New Products on Parade

(CONTINUED FROM PAGE 33)

### Firestone "Ground Grip"

A tire for construction work and operation where extreme traction is needed has been developed by Firestone Tire & Rubber



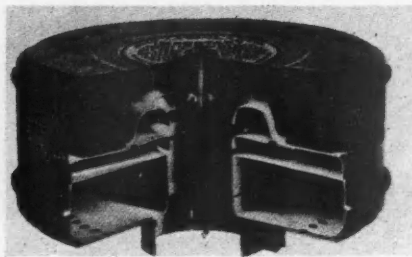
Co., referred to as ground grip heavy duty. A massive chevron-design tread grips and pulls in mud, loose sand or gravel. Extra rubber is built into the side for added protection. It runs on a low air pressure, and comes in sizes from 6.00-20 to 10.50-24 for rims specified ranging from 5 to 10 in.

### Motor Products' Z-Oil

Z-Oil is a new lubricant, which when mixed with regular motor oil increases life of the oil to 2500 miles, it is claimed by the manufacturers, Motor Products Laboratories, division of Chemical Industries Corp., Indianapolis. The oil is claimed to prevent metal-to-metal wear when the motor is cold; to mix at the rate of one pint to each six quarts of regular oil, and to be impervious to heat or gasoline solution.

### Burgess Makes Silencer

An intake air silencer and cleaner combination designed to absorb intake noises, filter grit and dust from the air, and thus protect cylinder walls and engine pistons,



is being marketed by the Burgess Battery Co., Madison, Wis.

### Plastic Gasket Seal

Bond Electric Corp., Jersey City, N. J., has developed a plastic gasket seal for mending leaks. This cement compound sticks to metal, paper, cork, leather, asbestos and other gasket materials. It prevents corrosion and withstands high compression and head temperatures. The compound is insoluble in water, gasoline, lubricating oils and anti-freeze solutions.

### Tailgate Elevator

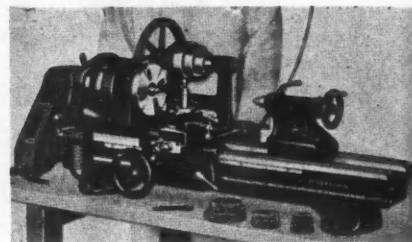
The Davey-Troell Power Elevator Tailgate is a power elevator operated by a take-off from the motor truck and designed for use in handling loads in or out of trucks. It is mounted in a welded steel frame and constructed into the tailgate at the factory or attached to an old chassis by commercial body builders. The power to lift and lower the tailgate is derived from the truck drive-shaft which operates



worm gears. Two drums near the center of the truck chassis operate cables leading to rams in vertical sliding grooves. These rams raise and lower the tailgate. During travel the tailgate serves and swings as a regular end gate. It moves down to street level in 60 seconds and is under control at all times.

### South Bend Lathe

A new back-geared, screw cutting lathe of 9 inch swing, available with countershaft drive or with motor drive, to sell at \$75, has been announced by South Bend Lathe Works, South Bend, Ind., under the name of the No. 5 "Workshop" Lathe. It is particularly adapted for use in the automotive



servicing shop because of its simplicity of design and convenience of its controls. A man need not be an expert machinist to operate this lathe. All fundamental machining and grinding operations can be handled.

"Workshop Booklet" No. 5-W describing this lathe may be obtained by writing the manufacturer.

### Wagner Brake Lining

Wagner CoMaX is a brake lining made by the Wagner Electric Corp., St. Louis, Mo. It is described as non-compressible under pressure, allowing brakes lined with it to run for long intervals without adjustments; homogeneous, uniform texture throughout, no variation in coefficient of friction from surface to surface; easy on drums as it contains no abrasive material; developed especially for high speed as it does not fade out under high friction temperature; quiet; smooth, permitting smooth controllable deceleration.

In addition to Wagner CoMaX, the Wagner Electric Corporation announces several other brake linings, both woven and molded to take care of every type of brake and price consideration.

For complete information regarding Wagner CoMaX brake lining, address the Automotive Division of the Wagner Electric Corp.

### Warco Traction Tread

To make tough going easier the W. A. Riddell Co., Bucyrus, Ohio, has patented traction treads for dual pneumatic-tired trucks and tractors. They furnish traction



in mud, sand and soft or loose ground, and in the Winter, in snow and ice.

COMMERCIAL CAR JOURNAL

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# News of the Industry

## Ford Sales Increase

World sales of Ford commercial cars, trucks, and passenger cars totaled 278,553 units for the first four months of 1934, an increase of 158.6 per cent over the same period in 1933. The greatest improvement in sales took place in South America and the Far East with a fourfold increase; in Great Britain with a ninefold increase; and in Canada with a fivefold increase. Sales in Europe were 36 per cent over last year's figures.

## Chevrolet Cuts Prices

Chevrolet reports commercial car price reductions of \$35 each on the commercial panel and the special commercial panel, and \$50 reductions each on the utility long chassis, dual long chassis, utility chassis and cab, dual chassis and cab, utility long chassis and cab, dual long chassis and cab, utility panel, dual cab and stake panel, and dual long cab and stake body. Thirty dollars has been cut from the commercial chassis.

## President Hears NACC Committee

The presidential ear heard requests that the existing labor situation in the automobile industry be not confused by the creation of additional legislation when audience was granted to a committee of the National Automobile Chamber of Commerce in Washington early this month. The opinion of the committee was that new legislation might result in conflicts impairing business for the next few months.

## Consumption Down Tax Up

State gasoline taxes for 1933 exceeded 1932 by nearly \$5,000,000 for a total of \$519,000,000, it was announced by the Department of Agriculture. Figures do not include returns from Federal gasoline taxes. In spite of this income, consumption of 14 billion gallons was slightly less than for 1932. Weighted average tax rate was 3.65 cents per gallon.

## Employment and Pay Up

The automobile industry in Michigan employed 291,440 during April, 1934, compared to 125,967 men for the same month last year. Weekly payrolls totaled \$7,356,311, compared to \$2,636,028 for April last year.

## Parts Sales Show Gain

Increase in sales volume of automotive service parts of 37 per cent—tools up 46 per cent and shop equipment up 76 per cent—for the first quarter of this year over the same period last year, was reported in a survey by the National Standard Parts Association.

## Dodge Sales Increase

Dodge again stepped up commercial car and truck sales. For the one week period

## A Correction

*Commercial Car Journal* has been in touch with Jack Frost, whose truck code statements were published in May, regarding his reference to Reo.

Mr. Frost declares the transcript of his speech (which *Commercial Car Journal* followed) was inaccurate, and wishes the impression created by the reference corrected. Reo does not have a 1¾-ton truck.

The Studebaker reference likewise is not to be construed as indicating an attempt to evade the code by anticipation. The fact is, Studebaker began listing a 1¾-ton model in *Commercial Car Journal* Specifications Table back in December, 1932 BC (Before Codes).

ending May 26, the twenty-first of the year, sales totaled 958 units, making the total for the year to date 17,639 or an increase of 416.8 per cent over the same period for 1933.

## Reo Ahead of 1933

Reo truck shipments for the first five months of this year have passed the entire 1933 output. Production and shipment for May totals 2517 passenger cars and trucks. This is three times the figure for May of last year.

## Rail Unfair to Trucks, Fined

Utah and Nevada truck operators won an important victory against the Nevada Northern Railway Co., when the U. S. District Court of Carson City, Nev., imposed

finest totaling \$557 upon the railroad company and certain of its employees last month. Court action was brought by truck operators of the two states charging the company with boycotting merchants using motor truck service. Intimidation of merchants was possible because of the dominant position of the railroad. Truck owners, led by T. S. Carter of the Interstate Motor Lines, instigated proceedings against the railroad a year ago. The decision makes possible action in civil cases, and truck operators affected by the boycott are considering such action.

## Warner Reorganizes

Warner Electric Brake Mfg. Co., Detroit, a reorganization of the Warner Electric Brake Corp., will manufacture braking systems for motor trucks in addition to the regular line of brakes for heavy-duty trailers. Officers of the new company are R. E. Freeman, president; A. P. Warner, vice-president; P. J. E. Wood, secretary-treasurer. Albert C. Warner, general manager of the old concern, is now associated with Barber-Coleman, Ltd., Manchester, England, a subsidiary of the parent company in Rockford, Ill.

## General Motors Exhibits

Automobile shows sponsored by General Motors were held simultaneously in all principal cities throughout the country during the week of June 2 to 9. New model trucks, from ½-ton light delivery up, were on view.

... more News on next page



The Minneapolis truck drivers' strike wasn't a sissy affair, as you can see from this picture. The cop has just taken a wicked left to the chin. In this scrap 16 strikers and four policemen were injured.

## News of the Industry

(CONTINUED FROM PAGE 35)

### R.I.T.O.A. Elects Officers

The following officers were elected to serve for one year at the annual meeting of the Rhode Island Truck Owners Association held in Providence last month: President, P. F. Arnold, Cole Teaming Co.; vice-president, C. F. Lull, Follett & Steere; treasurer, Ernest Harrell, T. W. Waterman Co.; secretary, R. E. Hard. Board of Director members are: Edward Theroux, Henry Lussier, John Woodward, Elphege Smith, George Holley, O. D. Edwards, Carl Crafts, F. C. Sutherland, Joseph Costa, D. C. McQueeney, and Earl Deaett.

### Ford at the Fair

More than a thousand separate machines to be used in telling the complete story of the manufacturing of automobile parts from raw materials to finished products are on exhibit at the new Ford exposition center in Chicago. The Ford project covers 11 acres, was built in record time (three months), and is the largest exhibit of its kind.

### More Dealers for Reo

Reo Motor Car Co. appointed 56 new distributors and dealers last month to handle Reo speed wagons and passenger cars, Elijah G. Poxson, general sales manager, announces.

### Bendix Summer School

Teachers of automotive service in trade and commercial schools throughout the country are invited to attend free classes of instruction at the Bendix Service School in South Bend, Ind. The course extends over a period of four weeks and covers everything from wheel alignment to carburetor adjustment. Those desiring to attend may write to the school.

### What Price Comma & Bureaucracy?

Complete text of an official sheet sent out to thousands by the NRA. Approval Code No. 46. Registry No. 1403-32.

#### ERRATA SHEET

Code of Fair Competition for the Motor Vehicle Retailing Trade, as approved on October 3, 1933.

Article IV, Trade Regulations, line 2 (page 568), delete comma after the word "trucks."

48157- 425- 125- 34

### Stewart Builds 1½ Ton at \$695

A six-cylinder, 1½-ton truck at \$695 is announced by Stewart Motor Corp. Chassis is supplied in wheelbase lengths from 134 to 176 in. Details will be published in the July issue.

### Gunite Appoints Davis

Charles Davis, New York City, has been appointed Eastern sales representative of Gunite Foundries Corp., Rockford, Ill. Establishment of three branch warehouses has also been announced. They are: Automotive Warehouse Service, New York City; Parts Warehouse Co., Dallas, Tex.; Walter Grebe Co., Seattle, Wash.



Mr. McAllister

### McAllister Upped by IHC

Board of Directors of the International Harvester Co. elected Sydney B. McAllister a director, member of the finance committee, and first vice-president of the company at a meeting last month. Mr. McAllister began work as office boy for McCormick Works in 1897.

### A Prominent Prospect

Walter B. Pitkin, student of economics extraordinary, author of the book, "Life Begins at Forty," practices what he preaches. In any event Professor Pitkin believes in decentralization. He says cities will lose their importance and industries will shift their base.

Pitkin himself spends part of his time at Columbia University in New York and some of his time at his farm in Maryland. He is planning to purchase a fleet of trucks shortly to enable him to truck produce to Philadelphia, Washington and Baltimore.

A man who lives on a plane of masculine reason, plots his activities on graphs and charts, will surely operate those trucks on an efficient, mathematical basis—when he gets them. A good prospect, here.

### U. S. Rubber Promotes Bock

H. O. Bock, former head of the truck and bus tire department, New York City, is now district tire sales manager at Chicago, U. S. Rubber Co. announces.



Mr. Fairhurst

### Spicer Promotes Fairhurst

Spicer Manufacturing Corp., Toledo, announces the appointment of William Fairhurst vicepresident in charge of sales. He entered the sales department in 1925.

### Chevrolet Shifts Outfield

Chevrolet announces the following regional changes: Harold Wellbaum promoted from zone to sales promotion manager at Dallas; J. L. Mathews from zone to regional accounting manager at Oklahoma City, S. J. Brewer becomes city manager; W. R. Peel from regional truck and body to assistant zone manager; A. L. Henderson from regional dealer accounting to assistant zone manager at Dallas, and E. S. Graham from assistant zone to city manager.

R. M. Campbell from assistant zone manager in Des Moines to the same position in Chicago, succeeding L. V. Bierk, now zone manager at Janesville, Wis. J. L. Connell, regional accounting manager at Janesville, becomes assistant zone manager at Des Moines.

### Hair, Brower, Gilmore Connect

P. C. Hair has been appointed Dodge Brothers field organization representative in the Portland and Manchester districts of the Boston region. C. L. Brower has been appointed truck representative in the new Los Angeles district. He is succeeded by R. W. Gilmore, who will operate in the Spokane and Portland districts of the San Francisco region.

### Taylor Promoted

Ralph E. Taylor has been appointed Milwaukee factory branch manager for the Fruehauf Trailer Co., of Detroit. He was formerly on the sales staff of the Cleveland office.

### Parker With Duplex

Carl Parker, formerly sales manager of the truck division, Reo Motor Car Co., well known to the industry at large, has been appointed sales manager of Duplex Truck Co., Lansing, Mich.

### Roller Now With White

George R. Roller, associated with the Diamond T organization for 11 years, is now wholesale representative in the Chicago area for The White Co.

### Valance and Smith

Edward L. Valance and Frederick A. Smith have been appointed assistant general managers of Houde Engineering Corp., Buffalo, and Oakes Products Corp., North Chicago, respectively.

### U. S. Rubber Ups Tompkins

L. D. Tompkins has been appointed general manager of the United States Rubber Co.'s tire division which includes sales and operation of tire plants throughout the country. He has been with the company since 1916.

### Barker Sails as Sales Manager

Harold V. Barker, sales engineer, Ohmer Register Co., has been appointed sales manager for Europe.

(TURN TO PAGE 53, PLEASE)

Not some.. but

**ALL**



of the Cars using  
**LOCKHEED HYDRAULIC BRAKES**  
have good brakes

There are no exceptions,  
either in America or abroad

Lockheed Hydraulic Brakes, perfected over a period of more than eleven years of strenuous service in American and European cars and trucks, can be quickly adopted by any manufacturer with the absolute assurance of "brakes without bugs." Factory application is extremely simple and rapid.

More than a third of all makes of American cars use Lockheed Hydraulics. Seventy per-cent of all makes of American trucks use them on one or more models. They provide important advantages to the manufacturer, to the dealer, and to the more than one million owners who actively prefer them.

HYDRAULIC BRAKE COMPANY  
 DETROIT, MICHIGAN

**LOCKHEED HYDRAULIC**  
*Four BRAKES Wheel*

OFFICIALLY SERVICED THROUGHOUT THE NATION BY WAGNER ELECTRIC CORPORATION

JUNE, 1934



## A Check on Trucking Costs

(CONTINUED FROM PAGE 13)

"Cargo, Public Liability and Property Damage, Collision, Fire and Theft and Workmen's Compensation shall for the purposes of the Code Formula be included as elements of cost, regardless of whether or not these risks are underwritten by insurance companies. In the cases where these risks are not carried by insurance companies, the amount of the charges on account of these items of cost shall be determined by the respective Code Authorities.

"Federal, State and Local taxes shall for the purpose of the cost formula be considered as an element of cost in those states where such taxes are applicable."

**T**HE subcommittee on cost detail items, headed by Alex Miller of Cleveland, Ohio, recommended that one formula be used as a basis for the entire industry.

The Committee felt after considerable discussion that in setting up a single cost formula, it would be most advantageous and more readily adaptable to the smaller operator.

The Committee was of the opinion that the detailed cost items as set forth are adaptable to any type of operation. The individual cost items may be further subdivided to meet the needs of the larger operators.

**I**TEMS suggested for inclusion in the cost formula are:

Direct Cost of Vehicle Operation; Wages of drivers and helpers, and others on vehicles; gasoline, oils and fuel, grease and anti-freeze; tires, tubes, and tire repairs; vehicle repairs and

### Three Ideas of Utopia

By Fowler McCormick  
International Harvester Co.

**T**HE salesman's—Prices below competition, a special product to fit the needs of each buyer, and a sufficient quantity of goods at the time they are wanted.

**T**HE production man's—The production of identical units at a uniform rate uninterrupted by changes in design which make manufacturing discontinuous.

**T**HE engineer's—To be able to design the best product possible for each purpose regardless of how much such a product would cost to produce, or whether the design was adapted to efficient manufacture.

(From an S.A.E. Paper)

maintenance-labor, shop supervision, and materials; depreciation on vehicles; vehicle taxes, tags, licenses, and others; garage rent, light and heat; vehicle insurance—public liability, cargo compensation; fire and theft, collision (if carried), property damage, etc.; payment for leased or rented vehicles; additional maintenance; service cars—garage equipment—tools, etc.

Administrative, Terminal and General Expenses;

Salaries and wages of terminal employees; salaries of officers and own-

ers, office employees, and managers; solicitors' salaries and expenses, commissions and advertising and traveling expenses; rent, light and heat; telephone and telegraph; office supplies, stationery, printing and postage; maintenance of buildings, equipment, other than motor equipment; insurance, (other than on vehicles); taxes (other than on vehicles); depreciation (other than on vehicles); legal, auditing and organization; claims, damages, loss and bad debts; dues and donations; miscellaneous.

Other Expenses;

Hay, feed, harness and repairs and bedding.

Total cost.

(vehicle, administrative, terminal, and general).

### Cost Grouping Report

**T**HE committee on how to group costs, of which William Laube, Jr., of Connecticut, was chairman, suggested that simplicity must be the first consideration of the formula. Five general classes of operations were suggested, including general merchandise, dump truck, armored cars, live stock and grain trucks, and hired trucks (by day or hour). These groups are to be divided into two general classes, local and long-distance.

"We feel, however, that our most important conclusion, which we respectfully offer you, is the following:

"Local Code Authorities should be given as much latitude as possible in handling the application of the cost formula as above suggested. We are of the opinion that the type of men comprising the different State Code Authorities will use good judgment, and that the methods of interpreting these problems should be left to them. It is our idea that the National Code Authority should not be burdened excessively with these matters."

### Report on Formula

**W.** F. BANKS, of Brooklyn, was chairman of the subcommittee charged with the duty of studying the best form for the formula and how to apply it. The recommendations of this committee were that the Cost Formula be based upon the cost found for each individual job for operation. The recommendation was that all expenses of doing business should be divided into three general groups (a) direct expenses, (b) operating expenses, and (c) overhead.

These expenses were to be reduced by means of the average cost per day per truck to the cost per operation.

### The World's Largest Trailer



This is said to be the world's largest trailer. It is being used at Boulder Dam. It weighs 41 tons, carries 200 tons, is 22 ft. wide, 37 ft. long, turns on a radius of 100 ft., and is propelled by tractors. Thirty-two Goodyear solid tires support the load. Two axles are at each of the four corners. Each axle has two wheels with two tires on each wheel.

## COMMERCIAL CAR JOURNAL'S

## TRUCK SPECIFICATIONS TABLE

The Commercial Car Journal's Truck Specifications Table is brought up to date in each issue from data supplied monthly by truck manufacturers

## KEY TO ABBREVIATIONS AND REFERENCE MARKS

## GENERAL

**Chassis Price**—Chassis price quoted applies to the standard wheelbase and specifications listed. All prices are F.O.B. factory.

\*\*\*—List price not yet established. Ready next issue.

**Tonnage Rating**—Where a spread of ratings is given the maximum ratings are for ideal operating conditions and the minimum for extremely difficult conditions; the ranges between are for varying operating conditions.

**Gross Vehicle Weight**—Is chassis weight, plus body and cab, plus payload. Gross vehicle weight given for a model is based on maximum recommended tire size and not on tires listed as standard equipment.

**Chassis Weight Stripped**—Includes gas, oil and water and all things included in chassis price. Does not include the weight of cab.

**Maximum Brake H. P. at Given R.P.M.**—Is actual dynamometer reading without accessories.

**Tractors**—Unless given the designation N (meaning not available as tractor), all standard models may be assumed to be available as tractor.

(A) All Torque and Brake Horsepower values listed are based on engine outputs with all Standard Equipment Accessories running and are the same values obtaining with the truck on the road in actual operation.

(N) Not available as tractor.

(T) This designation accompanying a model number indicates vehicle is specifically designed for tractor use only.

c. o. e.—Cab-over-engine design.

(3) Corbitt—Larger engines and corresponding auxiliary units provided on all models at extra cost.

(4) Day Elder—Model 75—1½ ton—same specifications except price—\$945, and larger tire size—B6.00/20 front and DB6.00/20 rear.

(5) Dodge—F-61 available as special tractor truck with 146-inch wheelbase with model designation of F-60, at \$2645. K-61 available as special tractor truck with 146-inch wheelbase with model designation of K-60, at \*\*\*.

(6a) Dodge—Model H20, ¼-1 ton, gross vehicle weight 6,000 lb., price \$502, has same specifications as H30 except tires which are 7.50/17 and lighter rear springs.

(6) General Motors—Models T-18 to T-61 inclusive are also available for export only as coach chassis. Double reduction axles optional at extra cost in Models T-43, T-43T, T-51, T-73H and T-74. Worm type axles optional at price deduction in Models T-61, T-75T, T-75, T-75H and T-83. Chassis prices and weights on all cab-over-engine models include the cab. A complete line of super-heavy duty models designated T-85 series (4-wheel) and T-95 series (6-wheel) custom-built to exactly meet customer's requirements are available with a range of axles, wheelbases, engines, transmissions, etc. and prices will be quoted upon application.

Gramm—Larger engines and corresponding auxiliary units provided on all models at extra cost when type of service demands. Wheelbases and body mounting dimensions may change to suit special requirements. Double reduction axles available on all models except AX and BX.

Gross weight indicated for each model in the table is the straight rating.

Series CXH is supplied with Hercules JXB engine in Model CXHB and Hercules JXC in Model CXHC.

(7) Grass Premier—Eight cylinder engines available on following models: 835 with Lye. GU at \$1515 list; 865 with Lye. HF at \$4230; 875 with Lye. AE at \$5400.

(8) International Harvester—A-1, ¼ ton, same as A-2 except less spring leaves and smaller tires.

(9) Le Moen—Model 600 available with Lye. AEC at same cost. Models 701 and 801 available with Waukesha 6SRL at same cost.

(10) Sterling—Rocker arm used in place of springs.

(\*) Sterling—These models also available equipped with Cummins Model H Diesel engine.

†Reo—Model 1D is the longer wheelbase edition of Model 1B. The frame dimension is 7x2½x4. It is furnished at extra cost.

††Reo—2J, 2K same as 2H except 166 in wheelbase and price of \$1695

††Reo—3J same as 3H except wheelbase of 170 in. and price of \$2085; 3K same as 3H except 185 in. wheelbase and price of \$2155. 3M same as 3H except 205 in. wheelbase.

(11) Studebaker—S-2 in 141 in. and 165 in. wheelbases has 64 in. frame depth.

(12) White—Each model shown is furnished with different specifications for different tonnage ratings.

•—Factory governed speed 2400 r.p.m.

(12a) White—Special prices for each installation.

(13) Marmon-Herrington—Available with Hercules Diesel engine. Price on application.

(14) Ford—Rear axle ratios 5.14 and 6.6 optional on 1½-ton trucks.

(15) Mack—Chassis price and weight include cab.

(16) Biederman—Will furnish Continental, Hercules, Waukesha and Lycoming engines at the buyer's option.

(17) Moreland—All Moreland models available with Waukesha engines and as six-wheelers with dead axle.

## MAKES—ALL

AB—American Bosch.

A La F—American La Franco.

AL—Auto Lite.

B—Bendix.

BB—Borg & Beck.

BL—Brown-Lipe.

BO—Bendix front, Own rear.

Ble—Blood.

Bu or Bud—Buda.

BW—Borg Warner.

BWs—Bendix front, Westinghouse rear.

C or Col—Columbia.

Car—Carter.

Ch—Chicago.

CI—Ignition by compression.

Cl or Cla—Clark.

Cle—Cleveland.

Co—Covert (transmission).

Co—Covert (clutch).

Con—Continental.

Cot—Cotta Gear.

Cum—Cummins-Diesel.

Det—Detroit Lubricator.

DG—Detroit Gear and Machine.

DR—Delco Remy.

Eat—Eaton.

El—Eisenmann.

En—Governor built in engine.

EV—Electro-Vac (gov.) Pierce.

Fe—Feddars.

Fu—Fuller.

Ge—Gemmer.

GO—G. & O.

Ha—Handy (governor).

Ha—Hannum (steering gear).

HaS—American Car & Fdry.

Her—Hercules.

HT—Harrison.

HS—Merchant & Evans (clutch).

HS—American Car & Fdry. (governor).

Jac—Saginaw.

Jo—Jones.

KP—Handy.

L—Lockheed.

Li—Lipe, W. C.

LN—Leece Neville.

Lo—Long.

LO—Lockheed front, Own rear.

LW—Lockheed front, Wisconsin rear.

Lyc—Lycoming.

Mc—McCord.

Ma—Marvel.

ME—Merchant & Evans.

MM—Mechanics Mach.

Mo—Modine (radiator).

Mo—Monarch (governor).

My—Mallory.

NE—North East.

No—Not supplied.

ns—No Standard.

O or Ow—Own.

Op or Opt—Optional.

Pe—Pierce (governor).

Pe—Perlex (radiator).

PS—Peters & Sneed.

RB—Robt. Bosch.

Ro—Rockford.

Ros—Ross.

Sc—Scintilla.

Sch—Wheeler-Schebler.

Snu—Shuler.

SpB—Spicer and Blood.

SpI—Spicer.

St or St—Sterling.

Str—Stromberg.

TH—Tillotson.

T or Tim—Timken.

TWH—Timken Wisconsin Herrington.

WG—Warner Gear.

Wc—Waukesha (governor).

Wau—Waukesha.

W or Wis—Wisconsin.

Wc—Westinghouse.

Yo—Young.

Zen—Zenith.

## BRAKES—SERVICE

## Location

2—Two Wheels, rear only.

2/4—Two-wheel brakes effective on all four wheels through driveshaft.

4/4—Brakes on four rear wheels effective on all wheels through driveshaft.

T/4—Brake on transmission effective on all four wheels through driveshaft.

4—Four Wheels, front and rear.

4r—Four Wheels, rear only.

6—Six Wheels, front and rear.

J—Jackshaft.

P—Propeller shaft.

## Type

I—Internal.

X—External.

## Operation

A—Air.

D—Hydraulic and mechanical.

H—Hydraulic.

M—Mechanical.

V—Vacuum.

## BRAKES—HAND

## Location

C—Center of double propeller shaft.

2—Rear wheels.

4—Four wheels.

R—Worm or bevel gearshaft.

T—Transmission.

F—Driveshaft.

## Type

D—Tru-Stop disk.

I—Internal.

X—External.

## BRAKE DRUMS

## Material

a—Cast alloy iron.

A—American Car Fdry.

C—Centrifuge.

D—Dayton.

E—Ermalite.

G—Gunite.

H—Hunt Spiller.

c—Cast iron.

p—Pressed steel.

f—Pressed steel.

s—Cast steel.

(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

## CLUTCH

## Type

D—Multiple disk.

dp—Double plate.

O—Plate in oil.

P—Single plate.

## ENGINE

## Valve Arrangement

F—Inlet valve in head; exhaust valve at side.

H—In head.

L—"L" head, valves at side.

T—Inlet and exhaust on opposite sides.

## Camshaft Drive

C—Chain.

G—Gear.

## Piston Material

A—Aluminum alloy.

B—Semi-steel.

C—Cast iron.

N—Nickel iron.

S—Aluminum alloy with strut.

## Main Bearings

r—Rear main bearing.

## Oiling System

CC—Pressure to main, connecting rod and camshaft bearings.

FF—Pressure to main, connecting rod camshaft bearings and piston pins.

PC—Pressure to mains and connecting rod bearings.

PG—Pump, gravity and splash.

PS—Pressure with splash.

## FRAME

## Type

I—"I" Beam.

C—Channel.

T—Channel tapered front and rear.

L—Channel reinforced with liner.

B—Channel reinforced with both liner and fishplate.

P—Channel reinforced with plate.

TL—Channel tapered front and rear reinforced with liner.

D—Drop Center

TI—Tapered front

X—x-Braced

## FUEL SYSTEM

## Fuel Feed

E—Electric pump.

G—Gravity.

M—Mechanical pump.

P—Pressure.

V—Vacuum.

B—Bosch

C—Cummins

## REAR AXLE

## Final Drive and Type

B—Bevel.

C—Chain.

D—Dead.

F—Full-floating.

2—Double Reduction.

S—Spiral bevel.

W—Worm.

w/2—Worm or Double Reduction

Optional.

¼—Semi-floating.

¾—Three-quarter floating.

## Drive and Torque

A—Radius Rods and Torque Arm.

H—Hotchkiss. (springs)

R—Radius Rods

T—Torque Arm.

U—Torque Tube.

## SPRINGS

## Auxiliary Type

¼—Semi-elliptic above or below main springs.

¾—Quarter elliptic.

C—Coil spring.

N—No.

O—Optional.

## TIRES

B—Balloons.

DB—Dual Balloons.

P—High Pressure Pneumatics.

DP—Dual High Pressure Pneumatics.

S—Solids.

DS—Dual Solids.

—Pneumatics at extra cost.

## TRANSMISSION

## Location

A—Amidships.

J—Unit with jackshaft.

U—Unit with engine.

## Auxiliary Location

No—Not furnished.

O2—2 speed axle unit optional at extra cost.

Op—Optional at extra cost.

A—Amidships.

R—Rear of amidships main transmission.

U—Unit with engine.

## WHEELS DRIVEN

2C—Center pair of rear wheels

2R—Rear pair of rear wheels.



Line Number	MAKE AND MODEL	GENERAL (See Keynote)				TIRE SIZE		MAJOR UNITS							FRAME		Line Number	Piston Displacement		
		Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	ENGINE		TRANSMISSION		REAR AXLE		Type				
										Make and Model	No. of Cylinders Bore and Stroke	Make and Model	Location and Forward Speeds	Aux. Location and Speeds	Make and Model				Gear and Type	Drive and Torque
1	A.C.F.	160 6	6950	186	222	26000	10170	B9.75/22	B9.75/22	Has 160	6-4 1/2 x 5 1/2	BL 1714	U4 Op	Tim 76730	2F	R 7.46	52.7	8.33x4 1/2	P	1468
2	Armleder	175B 6 1/2	8300	186	222	26000	10750	B10.50/22	B10.50/22	Has 175	6-5 1/2 x 5 1/2	BL 714	U4 Op	Tim 76730	2F	R 7.46	52.7	8.33x4 1/2	P	2707
3		175A 7 1/2	8800	186	240	30000	11610	B10.50/24	B10.50/24	Has 175	6-5 1/2 x 5 1/2	BL 714	U4 Op	Tim 76730	2F	R 7.46	52.7	8.33x4 1/2	P	3707
4		21Ha 2 1/2-4	1295	156	195	11500	4850	B6.50/20	B6.50/20	Con 16C	6-3 1/2 x 4 1/2	BL 35	U4 No	Tim	BF	H 5.83	31.2	6.33x4 1/2	P	4248
5		31Ha 3 1/2-4 1/2	2185	160	207	15300	5450	B8.25/20	B8.25/20	Her WXC	6-4 1/2 x 1 1/2	Fu 5-A-38	U5 No	Tim	BF	H 6.06	38.5	6.33x4 1/2	P	5339
6		41Ha 4 1/2-6	2695	146	213	19500	5750	B9.00/20	DB9.00/20	Her WXC	6-4 1/2 x 1 1/2	Fu 5-A-38	U5 No	Tim	BF	H 6.02	39.2	7.33x4 1/2	P	6339
7		51Ha 5 1/2-7	3050	146	227	23000	6600	B9.75/20	DB9.75/20	Her WXC	6-4 1/2 x 1 1/2	Fu 5-A-38	U5 No	Tim	BF	H 6.83	43.8	7.33x4 1/2	P	7339
8		61Ha 6 1/2-8	3725	146	227	24000	7400	B9.75/20	DB9.75/20	Her WXC2	6-4 1/2 x 1 1/2	Fu 5-A-38	U5 No	Own	2F	R 7.07	49.7	8.33x4 1/2	P	8360
9		71Ha 7 1/2-9	5895	152	247	35000	9820	B10.50/24	DB10.50/24	Her RXC	6-4 1/2 x 1 1/2	Fu 5-A-53	U5 No	Own	2F	R 7.07	49.8	8.33x4 1/2	P	9360
10	(T) TRD	10	4150	148	174	35000	7100	B9.00/20	DB9.00/20	Her YXC	6-4 1/2 x 1 1/2	Fu 5-A-53	U5 No	Own	2F	R 7.8	56.8	7.33x4 1/2	P	10360
11	(T) TRD	12	4350	148	174	39000	7226	B9.75/20	DB9.75/20	Her YXC3	6-4 1/2 x 1 1/2	Fu 5-A-53	U5 No	Own	2F	R 7.8	56.8	7.33x4 1/2	P	11360
12	(T) TRD	15	4595	148	174	45000	7326	B9.75/20	DB9.75/20	Her RXC	6-4 1/2 x 1 1/2	Fu 5-A-53	U5 No	Own	2F	R 7.8	56.8	7.33x4 1/2	P	12360
13	Autocar	RG 2 1/2	3000	150	192	25500	6100	P34x7	DP34x7	Ow R	6-3 1/2 x 4 1/2	Ow T	U4 No	Own D	2F	H 6.21	39.3	8.33x4 1/2	T	13314
14		D 3	3500	150	192	25500	6140	P34x7	DP34x7	Ow SD	6-4 1/2 x 4 1/2	Ow T	U4 No	Own D	2F	H 6.21	39.3	8.33x4 1/2	T	14358
15		DF 3 1/2	3950	150	192	25500	7010	B9.00/20	DB9.00/20	Ow SD	6-4 1/2 x 4 1/2	Ow T	U4 No	Own TE	2F	H 6.43	40.7	8.33x4 1/2	T	15358
16		DH 4	4150	150	174	25500	7400	P36x8	DP36x8	Ow SD	6-4 1/2 x 4 1/2	Ow T	U4 No	Own N	2F	H 6.43	40.7	8.33x4 1/2	T	16358
17		DF 4	4650	191	227	25500	8275	B9.75/20	DB9.75/20	Ow SCH	6-4 1/2 x 4 1/2	Ow D	U5 No	Own N	2F	H 7.20	45.6	9.33x4 1/2	T	17404
18		NF 5	4750	151	227	25500	8370	B9.75/22	DB9.75/22	Ow SCH	6-4 1/2 x 4 1/2	Ow D	U5 No	Own TF	2F	H 7.20	45.6	9.33x4 1/2	T	18404
19		US 5	5500	168	168	25500	9675	B9.75/22	DB9.75/22	Ow SCH	6-4 1/2 x 4 1/2	Ow T	U4 A 3	Own CG	2F	H 8.52	54.0	9.33x4 1/2	T	19404
20		C 7 1/2	6650	158	176	25500	11784	B10.50/24	DB10.50/24	Ow SCM	6-4 1/2 x 4 1/2	BL 734	U4 A 3	Wis 78720	2F	H 9.92	121.1	10.1x3x4 1/2	T	20453
21		NFS 7 1/2	5600	208	208	25500	10000	B10.50/20	DB10.50/20	Ow SCH	6-4 1/2 x 4 1/2	Ow T	U4 No	Own TF	2F	H 7.20	45.6	9.33x4 1/2	T	21404
22		T 7 1/2	5900	192	242	25500	9680	B10.50/22	DB10.50/22	Ow SCM	6-4 1/2 x 4 1/2	Ow D	U5 No	Own TG	2F	H 7.20	45.6	9.33x4 1/2	T	22453
23		TE 8 1/2	6300	214	228	25500	10020	B9.75/22	DB9.75/22	Ow SCM	6-4 1/2 x 4 1/2	BL 7351	U5 No	Own CG	2F	H 7.20	45.6	10.1x3x4 1/2	T	23453
24	(Eng. up. seat)	UDF 3 1/2	3500	97	145	11500	6740	P34x7	DP34x7	Ow SD	6-4 1/2 x 4 1/2	Ow T	U4 No	Own H & D	2F	H 6.21	39.3	8.33x4 1/2	T	24453
25		UN 4	3950	127	145	11500	7655	B9.00/20	DB9.00/20	Ow SD	6-4 1/2 x 4 1/2	Ow T	U4 No	Own TE	2F	H 6.43	40.7	8.33x4 1/2	T	25453
26		UN 4	4650	96	163	11500	8635	B9.75/20	DB9.75/20	Ow SCH	6-4 1/2 x 4 1/2	Ow D	U5 No	Own C & N	2F	H 7.20	45.6	9.33x4 1/2	T	26404
27		UNF 5	4850	128	163	11500	9200	B9.75/22	DB9.75/22	Ow SCH	6-4 1/2 x 4 1/2	Ow D	U5 No	Own TF	2F	H 7.20	45.6	9.33x4 1/2	T	27404
28		US 5	5300	109	109	11500	9115	B9.75/22	DB9.75/22	Ow SCH	6-4 1/2 x 4 1/2	Ow T	U4 No	Own CG	2F	H 7.20	45.6	9.33x4 1/2	T	28404
29		UT 7 1/2	5900	128	163	11500	9660	B10.50/22	DB10.50/22	Ow SCM	6-4 1/2 x 4 1/2	Ow D	U5 No	Own CG	2F	H 7.20	45.6	9.33x4 1/2	T	29453
30		UT 8 1/2	6300	145	163	11500	10530	B9.75/22	DB9.75/22	Ow SCM	6-4 1/2 x 4 1/2	Ow T	U4 A 3	Own CG	2F	H 7.20	45.6	10.1x3x4 1/2	T	30453
31	Available	W-120 1 1/2	1245	Op	Op	11200	4000	B6.50/20	DB6.50/20	Wau BL	6-3 1/2 x 4 1/2	WG T9	U4 No	Tim 53200	SF	H 6.6	42.2	10.2x2 1/2 x 4 1/2	T	31245
32		W-170 2 1/2	1620	Op	Op	13400	4700	B7.50/20	DB7.50/20	Wau BL	6-3 1/2 x 4 1/2	WG T9	U4 No	Tim 54300	SF	H 6.8	43.5	10.2x2 1/2 x 4 1/2	T	32245
33		W-210 3 1/2	1720	Op	Op	13400	4800	B7.50/20	DB7.50/20	Wau BK	6-3 1/2 x 4 1/2	BL 234	U4 No	Tim 54300	SF	H 6.8	43.5	10.2x2 1/2 x 4 1/2	T	33245
34		W-240 3 1/2	1975	Op	Op	16300	5400	B8.25/20	DB8.25/20	Wau BK	6-3 1/2 x 4 1/2	BL 234	U4 No	Tim 56200	SF	H 7.4	47.4	12.2x2 1/2 x 4 1/2	T	34282
35		W-300 4 1/2	2750	Op	Op	20700	7000	B9.00/20	DB9.00/20	Wau 6-110	6-4 1/2 x 4 1/2	Fu 5-A-380	U5 No	Tim 58205	SF	H 7.8	54.6	12.2x2 1/2 x 4 1/2	T	35358
36		W-400 5 1/2	3750	Op	Op	25500	8200	B9.75/20	DB9.75/20	Wau 6-125	6-4 1/2 x 4 1/2	Fu 5-A-530	U5 No	Tim 65720H	WF	H 8.5	55.6	14.3x3x4 1/2	T	36462
37	Biederman	80 1 1/2	895	130	157	6000	2800	B6.00/20	DB6.00/20	Con 25A (16)	6-3 1/2 x 4 1/2	Wau BL	U4 No	Cla B373	BF	H 5.10	31.6	6.33x4 1/2	T	37215
38		100 2 1/2	1195	157	170	8400	3200	B6.00/20	DB6.00/20	Wau BL	6-3 1/2 x 4 1/2	Wau BL	U4 No	Cla B373	BF	H 6.37	39.4	7.33x4 1/2	T	38245
39		120 3 1/2	1280	157	170	11400	4100	B7.00/20	DB7.00/20	Wau 68L (16)	6-3 1/2 x 4 1/2	Wau BL	U4 No	Cla B373	BF	H 6.37	39.4	7.33x4 1/2	T	39245
40		140 4 1/2	1795	180	200	16000	5400	B8.25/20	DB8.25/20	Wau 68L (16)	6-3 1/2 x 4 1/2	Wau BL	U4 No	Cla B613	BF	H 6.37	45.0	7.33x4 1/2	T	40282
41		160 5 1/2	2400	180	200	20000	6450	B9.00/20	DB9.00/20	Wau 68L (16)	6-3 1/2 x 4 1/2	Wau BL	U4 No	Cla B805	BF	H 6.42	46.7	7.33x4 1/2	T	41282
42		180 6 1/2	3150	180	210	20000	6820	B9.00/20	DB9.00/20	Lyc ASL (16)	6-3 1/2 x 4 1/2	Wau BL	U4 No	Cla B805	BF	H 6.42	46.7	7.33x4 1/2	T	42282
43		200 7 1/2	3600	157	210	24000	7530	B9.75/20	DB9.75/20	Her WXC3 (16)	6-4 1/2 x 1 1/2	Wau BL	U5 No	Wis 1237	2F	H 8.00	58.7	8.33x4 1/2	T	43282
44		220 8 1/2	4200	157	210	28000	8200	B9.00/20	DB9.00/20	Her R8L (16)	6-4 1/2 x 1 1/2	Wau BL	U5 No	Wis 1737	2F	H 8.94	65.1	10.33x4 1/2	T	44282
45	Brookway	80 2-2 1/2	1210	149	168	11500	4035													



Line Number	ENGINE DETAILS										FUEL SYST.	ELEC-TRICAL	FRONT AXLE	BRAKES		BODY MOUNT-ING DATA		SPRINGS		Auxiliary Type													
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	MAIN BEARINGS		Governor Make				Carburetors Make	Fuel Feed	Ignition System Make	Generator, Starter Make	Clutch Type and Make	Radiator Make		Universal Make	Make and Model	Steering Gear Make	SERVICE		Hand Location, Type	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear		
								Number and Diameter	Length		Lining Area	Drum Material																					
1	468	4.4	322	43	120-2200	H	C	A	7-3/4	14%	CC	Ha	Zen	V	DR	DR	P.B.L	Lo	Sp	Tim	27451	Ros	O41A	720	A	CD	172	102	33 1/2	42x3	56x4	N	
2	707	4.4	500	60	175-2200	H	C	A	7-3/4	14%	CC	Ha	Zen	M	DR	DR	P.B.L	Lo	Sp	Tim	27451	Ros	O41A	816	A	CD	172	102	33 1/2	42x3	56x4	N	
3	707	4.4	500	60	175-2200	H	C	A	7-3/4	14%	CC	Ha	Zen	M	DR	DR	P.B.L	Lo	Sp	Tim	27451	Ros	O41A	816	A	CD	172	102	33 1/2	42x3	56x4	N	
4	248	5.0	150	27	76-2800	L	C	G	7-3/4	13%	FP	No	Str	M	AL	AL	D.B.B	Yo	Sp	Tim		Ros	L41H	380	G	TX	129	93	31 1/2	40x2 1/2	50x3	N	
5	339	4.7	225	38	73-2200	L	C	G	7-3/4	13%	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Sp	Tim		Ros	L41HV	452	G	TX	129	93	31 1/2	40x2 1/2	50x3	N	
6	339	4.7	225	38	73-2200	L	C	G	7-3/4	13%	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Sp	Tim		Ros	L41HV	578	G	TX	106	Opt	31 1/2	40x2 1/2	62 1/2 x 2 1/2	N	
7	339	4.7	225	38	73-2200	L	C	G	7-3/4	13%	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Sp	Shu		Ros	L41HV	658	G	TX	106	Opt	31 1/2	40x2 1/2	62 1/2 x 2 1/2	N	
8	360	4.7	238	40	80-2200	L	C	G	7-3/4	15%	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Sp	Shu		Ros	L41HV	768	H	TX	106	Opt	31 1/2	41x2 1/2	62 1/2 x 2 1/2	N	
9	529	4.4	355	51	115-2200	L	C	G	7-3/4	15%	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Sp	Shu		Ros	L41HV	847	G	TX	118	Opt	31 1/2	41x2 1/2	62 1/2 x 2 1/2	N	
10	428	4.4	280	45	93-2200	L	C	G	7-3/4	15%	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Sp	Shu		Ros	L41HV	893	H	TX	93	Opt	31 1/2	41x2 1/2	62 1/2 x 2 1/2	N	
11	478	4.4	318	51	103-2200	L	C	G	7-3/4	15%	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Sp	Shu		Ros	L41HV	893	H	TX	93	Opt	31 1/2	41x2 1/2	62 1/2 x 2 1/2	N	
12	529	4.4	355	51	115-2200	L	C	G	7-3/4	15%	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Sp	Shu		Ros	L41HV	893	H	TX	93	Opt	31 1/2	41x2 1/2	62 1/2 x 2 1/2	N	
13	314	5.2	213	33	75-2400	L	C	G	7-3/4	12%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	31000	Ros	L41DV	450	e	2I	88%	60%	34 1/2	40x2 1/2	54x3	N
14	358	5.2	240	38	84-2500	L	C	G	7-3/4	12%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	33000	Ros	L41DV	450	e	2I	88%	60%	34 1/2	42 1/2 x 3	54x3	N
15	358	5.2	240	38	84-2500	L	C	G	7-3/4	12%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	35000	Ros	L41DV	519	e	2I	88%	60%	34 1/2	42 1/2 x 3	54x3	N
16	404	5.1	271	43	94-2500	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	35000	Ros	L41DV	519	e	FD	188%	102%	34 1/2	42x3	53x3	N
17	404	5.1	271	43	94-2500	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	35000	Ros	L41DV	519	e	FD	89%	61%	34 1/2	42 1/2 x 3	53 1/2 x 4	N
18	404	5.1	271	43	94-2500	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	26450	Ros	L41DV	543	e	FD	161%	82%	34 1/2	41 1/2 x 3	53 1/2 x 4	N
19	453	5.1	309	48	101-2400	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	27450	Ros	L41DV	660	e	FD	115%	71%	34 1/2	41 1/2 x 3	54 1/2 x 4	N
20	404	5.1	271	43	94-2500	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	26450	Ros	L41DV	543	e	FD	115%	71%	34 1/2	41 1/2 x 3	54 1/2 x 4	N
21	453	5.1	309	48	101-2400	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	26450	Ros	L41DV	543	e	FD	115%	71%	34 1/2	41 1/2 x 3	54 1/2 x 4	N
22	453	5.1	309	48	101-2400	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	26450	Ros	L41DV	543	e	FD	115%	71%	34 1/2	41 1/2 x 3	54 1/2 x 4	N
23	453	5.1	309	48	101-2400	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	26450	Ros	L41DV	543	e	FD	115%	71%	34 1/2	41 1/2 x 3	54 1/2 x 4	N
24	358	5.2	240	38	84-2500	L	C	G	7-3/4	12%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	35000	Ros	L41DV	519	e	2I	88%	60%	34 1/2	42 1/2 x 3	54x3	N
25	358	5.2	240	38	84-2500	L	C	G	7-3/4	12%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	35000	Ros	L41DV	519	e	2I	88%	60%	34 1/2	42 1/2 x 3	54x3	N
26	404	5.1	271	43	94-2500	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	26450	Ros	L41DV	543	e	FD	116%	71%	34 1/2	41 1/2 x 3	53x3	N
27	404	5.1	271	43	94-2500	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	26450	Ros	L41DV	543	e	FD	116%	71%	34 1/2	41 1/2 x 3	53x3	N
28	404	5.1	271	43	94-2500	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	26450	Ros	L41DV	543	e	FD	116%	71%	34 1/2	41 1/2 x 3	53x3	N
29	453	5.1	309	48	101-2400	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	26450	Ros	L41DV	543	e	FD	116%	71%	34 1/2	41 1/2 x 3	53 1/2 x 4	N
30	453	5.1	309	48	101-2400	L	C	G	7-3/4	14%	FP	OW	Str	M	DR	DR	P.B.L	Lo	GO	Sp	Tim	26450	Ros	L41DV	543	e	FD	116%	71%	34 1/2	41 1/2 x 3	53 1/2 x 4	N
31	245	5.1	165	29	73-3000	L	C	G	7-3/4	10%	FP	No	Zen	M	DR	DR	P.L	Ch	Blo	Tim	30000H	Ros	L41H	269	a	TX	Opt	Opt	32	42 1/2 x 2 1/2	58x2 1/2	N	
32	282	5.1	188	33	85-3200	L	C	G	7-3/4	10%	FP	Wa	Zen	M	DR	DR	P.L	Ch	Blo	Tim	31000H	Ros	L41H	330	a	TX	Opt	Opt	32	42 1/2 x 2 1/2	58x2 1/2	N	
33	282	5.1	188	33	85-3200	L	C	G	7-3/4	10%	FP	Wa	Zen	M	DR	DR	P.L	Ch	Blo	Tim	31000H	Ros	L41H	330	a	TX	Opt	Opt	32	42 1/2 x 2 1/2	58x2 1/2	N	
34	282	5.1	188	33	85-3200	L	C	G	7-3/4	10%	FP	Wa	Zen	M	DR	DR	P.L	Ch	Blo	Tim	31000H	Ros	L41H	330	a	TX	Opt	Opt	32	42 1/2 x 2 1/2	58x2 1/2	N	
35	358	5.1	254	38	110-2800	L	C	G	7-3/4	12%	FP	Wa	Ma	M	DR	DR	P.B.B	Ch	Blo	Tim	35000H	Ros	L41H	376	a	TX	Opt	Opt	32	42 1/2 x 2 1/2	58x3	N	
36	462	5.0	324	45	125-2600	L	C	G	7-3/4	13%	FP	Wa	Ma	M	DR	DR	P.B.B	Ch	Blo	Tim	35000H	Ros	L41H	462	e	FD	Opt	Opt	32	42 1/2 x 2 1/2	58x3	N	
37	215	5.0	142	27	72-3000	L	C	G	7-3/4	6%	CC	Mo	Zen	M	DR	DR	P.B.B	Pe	MM	Cla	F212	Ros	L41H	312	G	TX	89	54	34	47x2 1/2	60x2 1/2	N	
38	245	5.2	162	29	75-2800	L	C	G	7-3/4	10%	CC	Mo	Zen="																				

Line Number	MAKE AND MODEL	GENERAL (See Keynote)					TIRE SIZE		MAJOR UNITS										FRAME		Line Number	Piston Displacement
		Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	ENGINE		TRANSMISSION		REAR AXLE				Side Rail Dimensions	Type			
										Make and Model	No. of Cylinders Bore and Stroke	Make and Model	Location and Forward Speeds	Aux. Location and Speeds	Make and Model	Gear and Type	Drive and Torque			GEAR RATIOS		
1	Dodge Bros. KH-30 (Concluded)	1 1/2-2	535	131	157	8400	2612	B6.00/20	P32x6	Own	6-3 1/2 x 4 1/2	Own	U4	No	Own	SF	H 4.87	31.2	6 1/2 x 2 1/2	6 1/2 x 2 1/2	C	1201
2	KD32	1 1/2-2	545	136	161	10500	2885	B6.00/20	P32x6	Own	6-3 1/2 x 4 1/2	Own	U4	Op	Own	SF	H 5.66	36.2	7 1/2 x 2 1/2	7 1/2 x 2 1/2	C	217
3	KS32	1 1/2-2	560	136	161	10500	2866	B6.00/20	P32x6	Own	6-3 1/2 x 4 1/2	Own	U4	Op	Own	SF	H 5.66	36.2	7 1/2 x 2 1/2	7 1/2 x 2 1/2	C	201
4	H33	1 1/2-2	795	136	165	11000	3350	B7.00/20	DB7.00/20	Own	6-3 1/2 x 4 1/2	Own	U4	Op	Own	SF	H 6.37	40.8	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	242
5	K35	1 1/2-2	870	140	169	12500	3580	B6.50/20	DB6.50/20	Own	6-3 1/2 x 4 1/2	Own	U5	Op	Own	SF	H 6.33	44.7	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	242
6	H43	2-3	795	136	165	11000	3350	B7.00/20	DB7.00/20	Own	6-3 1/2 x 4 1/2	Own	U5	No	Own	SF	H 6.37	46.0	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	242
7	K45	2-4	870	140	169	12500	3675	B7.00/20	DB7.00/20	Own	6-3 1/2 x 4 1/2	Own	U5	Op	Own	SF	H 6.33	44.7	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	242
8	F40	2-4	1995	150	190	16000	5173	B6.50/20	DB6.50/20	Own	6-3 1/2 x 5	Own	U4	Op	Own	SF	H 6.37	43.7	9 1/2 x 2 1/2	9 1/2 x 2 1/2	C	309
9	K50	2-5	1995	150	190	16000	5344	P32x6	DP32x6	Own	6-3 1/2 x 5	Own	U4	Op	Own	SF	H 6.37	43.7	9 1/2 x 2 1/2	9 1/2 x 2 1/2	C	309
10	(5) F-61	3-5 1/2	2575	170	195	20000	5789	P32x6	DP32x6	Own	6-3 1/2 x 5	Own	U4	Op	Own	SF	H 7.12	48.8	10 1/2 x 2 1/2	10 1/2 x 2 1/2	C	309
11	(5) K-71	3-6	2575	170	195	20000	5789	P32x6	DP32x6	Own	6-3 1/2 x 5	Own	U4	Op	Own	SF	H 7.12	48.8	10 1/2 x 2 1/2	10 1/2 x 2 1/2	C	309
12	G-80	4-8	5250	146	220	25000	7640	B9.75/20	DB9.75/20	Own	8-3 1/2 x 5	Own	U5	Op	Own	SF	H 7.12	62.7	10 1/2 x 2 1/2	10 1/2 x 2 1/2	C	309
13	Duplex	S	1600	Op	15000	6000	B8.25/20	DB8.25/20	Bud K325	6-3 1/2 x 4 1/2	BL 2352	U5	No	Tim 65200	WF	R Opt	Opt	6 1/2 x 2 1/2	6 1/2 x 2 1/2	C	1309	
14	SAC	S	1720	Op	18000	7400	B9.75/20	DB9.75/20	Bud K428	6-4 1/2 x 4 1/2	BL 3353	U5	No	Tim 75733	WF	R Opt	Opt	7 1/2 x 2 1/2	7 1/2 x 2 1/2	C	1309	
15	K	S	1720	Op	21000	8000	B10.50/20	DB10.50/20	Bud L525	6-4 1/2 x 4 1/2	BL 5351	U5	No	Tim 76733	w2F	R Opt	Opt	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	1309	
16	M	S	1680	Op	28000	10000	DP10.50/24	DP10.50/24	Bud G572	6-4 1/2 x 6	BL 70	A7	No	Tim 68700	WF	R Opt	Opt	9 1/2 x 2 1/2	9 1/2 x 2 1/2	C	1309	
17	Esco	234	2860	165	205	15000	5900	B7.50/20	DB7.50/20	Con E603	6-4 1/2 x 4 1/2	CL 105R	U5	No	Tim 6642	BF	H 5.75	40.7	6 1/2 x 2 1/2	6 1/2 x 2 1/2	C	1309
18	Fageol	106BK	1700	161	195	11200	5000	B6.00/20	DB6.00/20	Wau ZK	6-3 1/2 x 4 1/2	WG T9	U4	No	Tim 53200H	BF	H 5.66	36.2	7 1/2 x 2 1/2	7 1/2 x 2 1/2	C	1309
19	106BK	1825	161	195	12700	5100	B6.50/20	DB6.50/20	Wau 6BK	6-3 1/2 x 4 1/2	WG T9	U4	No	Tim 53200H	BF	H 5.66	36.2	7 1/2 x 2 1/2	7 1/2 x 2 1/2	C	1309	
20	135HP	2340	161	195	13400	5800	B7.50/20	DB7.50/20	Wau 6-90	6-3 1/2 x 4 1/2	BL 234	U4	No	Tim 54200H	BF	H 5.83	37.3	6 1/2 x 2 1/2	6 1/2 x 2 1/2	C	2282	
21	135RA	2400	161	195	15000	6000	B7.50/20	DB7.50/20	Wau 6-90	6-3 1/2 x 4 1/2	BL 234	U4	No	Tim 54200H	BF	H 6.8	43.6	6 1/2 x 2 1/2	6 1/2 x 2 1/2	C	2182	
22	250HP	2700	178	196	16300	6875	B8.25/20	DB8.25/20	Wau 6MS	6-3 1/2 x 4 1/2	BL 334	U4	No	Tim 56200H	BF	H 7.4	45.4	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	2255	
23	250MS	2700	178	196	16300	6875	B8.25/20	DB8.25/20	Wau 6MS	6-3 1/2 x 4 1/2	BL 334	U4	No	Tim 56200H	BF	H 7.4	45.4	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	2355	
24	250MK	2750	178	196	16300	6900	B8.25/20	DB8.25/20	Wau 6MK	6-4 1/2 x 4 1/2	BL 334	U4	No	Tim 56200H	BF	H 7.4	45.4	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	2455	
25	250RA	3150	178	196	19500	7400	B8.25/20	DB8.25/20	Wau 6-110	6-4 1/2 x 4 1/2	BL 524	U4	No	Tim 58200H	BF	H 7.8	56.8	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	2528	
26	300HP	3500	178	196	20700	7900	B9.00/20	DB9.00/20	Wau 6-110	6-4 1/2 x 4 1/2	BL 524	U4	No	Tim 58200H	BF	H 7.8	56.8	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	2658	
27	300RA	3775	178	196	25300	8400	B9.00/20	DB9.00/20	Wau 6-110	6-4 1/2 x 4 1/2	BL 524	U4	No	Tim 5725H	WF	R 7.8	56.8	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	2711	
28	370HP	5000	182	200	25300	9500	B9.75/20	DB9.75/20	Wau 6-125	6-4 1/2 x 5	BL 734	U4	A3	Tim 65725H	WF	R 5.7	120.7	7 1/2 x 2 1/2	7 1/2 x 2 1/2	C	2811	
29	370SR	4850	182	200	25300	9750	B9.75/20	DB9.75/20	Wau 6SRK	6-4 1/2 x 5	BL 734	U4	A3	Tim 65725H	WF	R 5.7	120.7	7 1/2 x 2 1/2	7 1/2 x 2 1/2	C	2958	
30	370RA	5250	182	200	31000	10200	B9.75/20	DB9.75/20	Wau 6-125	6-4 1/2 x 5	BL 734	U4	A3	Tim 66720DH	WF	R 5.5	116.7	7 1/2 x 2 1/2	7 1/2 x 2 1/2	C	3058	
31	470HP	5500	182	200	33500	10350	B9.75/20	DB9.75/20	Wau 6-125	6-4 1/2 x 5	BL 734	U4	A3	Tim 66720DH	WF	R 5.5	116.7	7 1/2 x 2 1/2	7 1/2 x 2 1/2	C	3158	
32	685RB	7100	174	174	42000	12750	B10.50/24	DB10.50/24	Wau 6RB	6-5 1/2 x 5	BL 734	U4	A3	Tim 68720W	WF	R 6.54	144.8	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	3258	
33	Federal	DM	975	120	120	8000	3050	B6.00/20	P32x6	Con W10	4-3 1/2 x 4 1/2	WG T9	U4	No	Tim 6374	SF	H 5.67	38.2	6 1/2 x 2 1/2	6 1/2 x 2 1/2	C	3362
34	15 1/2	745	137	174	10000	3500	B6.00/20	P32x6	Her JXA	6-3 1/2 x 4 1/2	WG T9	U4	No	Tim 6374	SF	H 6.35	40.8	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	3462	
35	15 1/2	845	137	174	10000	3500	B6.00/20	P32x6	Her JXA	6-3 1/2 x 4 1/2	WG T9	U4	No	Tim 6374	SF	H 6.35	40.8	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	3562	
36	18 1/2	845	137	187	11000	3800	B6.50/20	DB6.50/20	Her JXA	6-3 1/2 x 4 1/2	WG T9	U4	No	Tim 6484	SF	H 6.88	44.0	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	3662	
37	20 1/2	1065	137	187	12000	3900	B6.50/20	DB6.50/20	Her JXB	6-3 1/2 x 4 1/2	WG T9	U4	No	Tim 6430H	SF	H 6.80	43.5	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	3777	
38	25 1/2	1325	137	201	14000	4500	B7.00/20	DB7.00/20	Her JXC	6-3 1/2 x 4 1/2	CL R115	U5	No	Tim 6460	SF	H 6.38	45.2	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	3800	
39	T3WFA	1795	148	185	14000	5110	P32x6	P36x8	Wau V	4-4 x 5	Own 7754	A4	No	Tim 64603H	WF	R 7.25	36.2	6 1/2 x 2 1/2	6 1/2 x 2 1/2	C	3928	
40	30 1/2	1995	175	237	16000	6050	B8.25/20	DB8.25/20	Wau 6MS	6-3 1/2 x 4 1/2	CL R114	U5	No	Tim 6464	SF	H 6.43	45.4	10 1/2 x 2 1/2	10 1/2 x 2 1/2	C	4028	
41	30 1/2	2490	175	237	19000	6400	B9.00/20	DB9.00/20	Wau 6MK	6-3 1/2 x 4 1/2	CL R908	U5	No	Tim 58200H	SF	H 6.8	43.6	8 1/2 x 2 1/2	8 1/2 x 2 1/2	C	4283	
42	40DR	2615	175	237	19000	6550	B9.00/20	DB9.00/20	Wau 6MK	6-3 1/2 x 4 1/2	CL R908	U5	No	Tim 7500H	2F	H 7.0	56.9	10 1/2 x 2 1/2	10			



[illegible]



Line Number	MAKE AND MODEL	GENERAL (See Keynote)				TIRE SIZE		MAJOR UNITS										FRAME		Line Number	Piston Displacement	
		Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front		ENGINE	TRANSMISSION	REAR AXLE				GEAR RATIOS	Side Rail Dimensions	Type				
								Make and Model	No. of Cylinders Bore and Stroke			Make and Model	Location and Forward Speeds	Aux. Location and Speeds	Make and Model				Gear and Type			Drive and Torque
1	Hug (Concluded)	232	1785	146	191	12310	5510	B7.00/20	DB7.00/20	Bud H298	6-3 1/2 x 4 1/2	Fu MLU	U4	No	Cla B611	SF	H 5.66	36.0	8x3 1/2 x 4 1/2	T	1298	5
2	238 2 1/2	2320	146	201	16400	6400	B8.25/20	DB8.25/20	Bud H298	6-3 1/2 x 4 1/2	Fu MLU	U4	No	Cla B642	SF	H 6.42	40.8	8x3 1/2 x 4 1/2	T	1298	5	
3	423	2175	146	201	15400	6400	B8.25/20	DB8.25/20	Bud H298	6-3 1/2 x 4 1/2	Fu MLU	U4	No	Cla B805	SF	H 6.37	40.5	8x3 1/2 x 4 1/2	T	1298	5	
4	418 3/4	5070	158	185	18165	5500	B9.75/20	B12.75/20	Bud K428	6-4 1/2 x 4 1/2	Fu MRUAY	U4	A 3	Wis 1237H	2F	H 8.95	119	8x3 1/2 x 4 1/2	T	1298	5	
5	42K 3	2685	146	201	20300	7300	B9.00/20	DB9.00/20	Bud K369	6-4 1/2 x 4 1/2	Fu 5-A-380	U5	No	Cla B805	SF	H 7.12	42.0	8x3 1/2 x 4 1/2	T	1298	5	
6	70 3	3495	122	122	18000	7370	B9.00/20	DB9.00/20	Bud K369	6-4 1/2 x 4 1/2	Fu 5-A-380	U5	No	Wis 70000Q	2F	H 9.14	64.0	6x3 1/2 x 4 1/2	T	1298	5	
7	87K 3 1/2	4360	128	128	23000	8156	B9.75/20	DB9.75/20	Bud K428	6-4 1/2 x 4 1/2	Fu MHOG	A 8	No	Wis 1237Q	2F	H 8.95	79.0	7 3/4 x 3 1/2 x 4 1/2	T	1298	5	
8	43 3/4	3510	146	201	23000	7800	B9.75/20	DB9.75/20	Bud K428	6-4 1/2 x 4 1/2	Fu 5-A-530	U5	No	Wis 1237H	2F	H 8.95	62.0	8x3 1/2 x 4 1/2	T	1298	5	
9	87Q 5	4985	144	144	28200	8300	B10.50/20	DB10.50/20	Bud K428	6-4 1/2 x 4 1/2	Fu 5-A-530	A 5	2	Wis 1737K	2F	H 9.16	92.0	8x4 1/2 x 4 1/2	T	1298	5	
10	431 5	4325	146	201	28105	8905	B9.75/20	DB9.75/20	Bud L525	6-4 1/2 x 4 1/2	Fu 5-A-530	U5	No	Wis 1737KW	2F	H 9.16	64.0	8x3 1/2 x 4 1/2	T	1298	5	
11	97L 7 1/2	5925	144	144	35620	10810	B10.50/20	DB10.50/20	Bud L525	6-4 1/2 x 4 1/2	Fu 5-A-530	U5	A 2	Wis 19027	2F	H 11.1	178	8x4 1/2 x 4 1/2	T	1298	5	
12	Indiana	85 1 1/2	1025	141	186	10000	3950	B6.50/20	DB6.50/20	Her JXC	6-3 1/2 x 4 1/2	BL 124	U4	No	Tim 53200H	SF	H 5.66	35.1	7 1/2 x 2 1/2 x 4 1/2	T	1298	5
13	95 1/2	1195	141	186	12000	4400	P32x6	DP32x6	Her JXC	6-3 1/2 x 4 1/2	BL 224	U4	No	Tim 54300H	SF	H 5.85	36.2	7 1/2 x 2 1/2 x 4 1/2	T	1298	5	
14	95DR 2 1/2	1275	141	186	15000	4650	B7.50/20	DB7.50/20	Her JXC	6-3 1/2 x 4 1/2	BL 224	U4	Op	Wis 4916L	2F	H 6.66	41.2	7 1/2 x 2 1/2 x 4 1/2	T	1298	5	
15	17A 3	2300	156	212	17000	6300	B8.25/20	DB8.25/20	Her WXC	6-4 1/2 x 4 1/2	BL 3341	U4	A 3	Tim 58205H	SF	H 6.83	43.0	8x3 1/2 x 4 1/2	T	1298	5	
16	17ADR 3	2475	156	212	18000	6350	B8.25/20	DB8.25/20	Her WXC	6-4 1/2 x 4 1/2	BL 3341	U4	Op	Wis 70000H	2F	H 7.06	44.3	8x3 1/2 x 4 1/2	T	1298	5	
17	17 3	2450	170	224	18000	6600	B8.25/20	DB8.25/20	Her YXC	6-4 1/2 x 4 1/2	BL 3341	U4	Op	Tim 58205H	SF	H 6.14	38.7	8x3 1/2 x 4 1/2	T	1298	5	
18	17DR 3	2675	170	224	19000	6700	B8.25/20	DB8.25/20	Her YXC	6-4 1/2 x 4 1/2	BL 334	U4	Op	Wis 70000	2F	H 6.96	50.8	8x3 1/2 x 4 1/2	T	1298	5	
19	19DR 3 1/2	3400	170	224	22000	7600	B9.00/20	DB9.00/20	Her YXC	6-4 1/2 x 4 1/2	BL 524	U4	Op	Wis 1237H	2F	H 7.2	52.3	8x3 1/2 x 4 1/2	T	1298	5	
20	43DR 4	4300	170	224	25000	8000	B9.75/20	DB9.75/20	Her RXB	6-4 1/2 x 4 1/2	BL 524	U4	Op	Wis 1627KH	2F	H 6.96	50.8	8x3 1/2 x 4 1/2	T	1298	5	
21	45DR 5	4800	170	224	25000	8700	B9.75/20	DB9.75/20	Her RXC	6-4 1/2 x 4 1/2	BL 524	U4	Op	Wis 1717H	2F	H 7.14	45.4	8x3 1/2 x 4 1/2	T	1298	5	
22	47DR 5-7	7500	188	224	28000	10500	B10.50/20	DB10.50/20	Cum-6HDie	6-4 1/2 x 4 1/2	BL 7351	A 5	No	Wis 1910W	2F	H 7.16	52.6	8x3 1/2 x 4 1/2	T	1298	5	
23	International	C 1 1/2	445	113	125	2220	4400	B5.25/18	B5.25/18	Own HD	6-3 1/2 x 4 1/2	Own D	U3	No	Own H D R-55	SF	H 4.18	12.5	6 1/2 x 2 1/2 x 4 1/2	T	1298	5
24	M2 1 1/2	850	118	118	3215	7100	B6.50/20	B6.50/20	Wau XAH	4-3 1/2 x 4 1/2	Own H4A	U4	No	Own 718	SF	H 6.17	39.5	6 1/2 x 2 1/2 x 4 1/2	T	1298	5	
25	(S) A2 1 1/2	615	136	160	2930	8000	B6.00/20	B6.00/20	Wau XAH	4-3 1/2 x 4 1/2	Own H4A	U4	No	Own 708	SF	H 5.29	33.5	6 1/2 x 2 1/2 x 4 1/2	T	1298	5	
26	B3 1 1/2	695	136	175	3530	10000	P30x5	P32x6	Own FAB-2	6-3 1/2 x 4 1/2	Own H4A	U4	No	Own 720	SF	H 6.17	39.5	7 1/2 x 2 1/2 x 4 1/2	T	1298	5	
27	B4 1 1/2	1045	145	185	4630	13300	B6.50/20	DB6.50/20	Own FAB-3	6-3 1/2 x 4 1/2	Own H4A	U4	No	Own 750	SF	H 6.50	41.6	8x3 1/2 x 4 1/2	T	1298	5	
28	D146B 3-4	5770	158	206	19500	7500	B9.00/20	DB9.00/20	Bud K393	6-4 1/2 x 4 1/2	Fu MRU	U4	No	Tim 76733H	2F	H 7.97	53.0	8x3 1/2 x 4 1/2	T	1298	5	
29	A5 3	2100	140	210	6660	19500	P34x7	DP34x7	Own FBB	6-3 1/2 x 4 1/2	Fu VUCG	U4	No	Tim 76733H	2F	H 7.97	53.0	8x3 1/2 x 4 1/2	T	1298	5	
30	A6 3	2450	140	210	6950	22000	P34x7	DP34x7	Own FBB	6-3 1/2 x 4 1/2	Own H5	U5	Op	Own 1002	SF	H 6.83	47.4	8x3 1/2 x 4 1/2	T	1298	5	
31	W2 3 1/2	3300	130	200	8250	24000	P36x8	DP36x8	HS 151	4-4 1/2 x 4 1/2	Own H6	U5	Op	Own 1200	2F	H 8.40	74.2	7x3 1/2 x 4 1/2	T	1298	5	
32	A7 5-7 1/2	6200	160	225	11590	37000	B9.75/20	DB9.75/20	Own FDB	6-4 1/2 x 4 1/2	Own H7	U5	Op	Own 1301	2F	H 6.38	57.3	5 1/2 x 3 1/2 x 4 1/2	T	1298	5	
33	A8 7 1/2	3300	160	225	11590	37000	B9.75/20	DB9.75/20	Own FEB	6-5 1/2 x 4 1/2	Own H7	U5	Op	Own 1301	2F	H 6.38	57.3	12 1/2 x 3 1/2 x 4 1/2	T	1298	5	
34	Kenworth	87 1 1/2-2	1245	146	170	11200	3900	B6.50/20	DB6.50/20	Her JXC	6-3 1/2 x 4 1/2	BL 234	U4	Op	Tim 53200H	SF	H 5.14	33.1	8x3 1/2 x 4 1/2	T	1298	5
35	88 1 1/2	1480	146	200	13400	4400	P32x6	DP32x6	Her JXC	6-3 1/2 x 4 1/2	BL 234	U4	Op	Tim 54300H	SF	H 5.83	37.4	8x3 1/2 x 4 1/2	T	1298	5	
36	101B 2-2 1/2	2050	146	200	13400	4700	B7.50/20	DB7.50/20	Bud H298	6-3 1/2 x 4 1/2	BL 234	U4	Op	Tim 53200H	SF	H 5.83	37.4	8x3 1/2 x 4 1/2	T	1298	5	
37	89 2 1/2	1670	146	200	13000	4600	B7.50/20	DB7.50/20	Her JXC	6-3 1/2 x 4 1/2	BL 234	U4	Op	Tim 56200H	SF	H 6.16	39.5	8x3 1/2 x 4 1/2	T	1298	5	
38	127 2 1/2-3	2600	154	202	16300	5490	B8.25/20	DB8.25/20	Her WXC	6-4 1/2 x 4 1/2	BL 334	U4	Op	Tim 56200H	SF	H 6.16	40.7	8x3 1/2 x 4 1/2	T	1298	5	
39	90 3	1820	146	200	18200	5500	B7.50/20	DB7.50/20	Her JXC	6-3 1/2 x 4 1/2	BL 334	U4	Op	Tim 58205H	SF	H 6.83	43.8	8x3 1/2 x 4 1/2	T	1298	5	
40	146B 3-4	3300	158	206	19500	5900	B9.00/20	DB9.00/20	Bud K393	6-4 1/2 x 4 1/2	BL 334	U4	Op	Tim 58205H	SF	H 6.83	43.8	8x3 1/2 x 4 1/2	T	1298	5	
41	D146B 3-4	5770	158	206	19500	7500	B9.00/20	DB9.00/20	Bud D6-415	6-4 1/2 x 4 1/2	BL 5341	U4	Op	Tim 58206H	SF	H 6.83	43.8	8x3 1/2 x 4 1/2	T	1298	5	
42	D-146-C 3-4	6250	158	206	19500	7600	B9.00/20	DB9.00/20	Own HA-4	4-4 1/2 x 4 1/2	BL 5341	U4	Op	Tim 58206H	SF	H 6.83	43.8	8x3 1/2 x 4 1/2	T	1298	5	
43	166B 3-4	3850	156	204	20700	6890	B9.00/20	DB9.00/20	Bud K393	6-4 1/2 x 4 1/2	BL 334											

Line Number	ENGINE DETAILS										FUEL SYST.	ELEC. TRICAL	FRONT AXLE	BRAKES		BODY MOUNTING DATA		SPRINGS		Auxiliary Type											
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	MAIN BEARINGS		Governor Make				Carburetors Make	Fuel Feed	Ignition System Make	Generator, Starter Make	Clutch Type and Make	Radiator Make		Universal Make	Make and Model	Steering Gear Make	SERVICE		Hand Location, Type	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear
								Number and Diameter	Length															Lining Area	Drum Material						
1298	5.3	200	33.7	80-2800	L	L	L	7-3	9%	FP	Pe	Zen	M	AL	DR	P.B.B	Yo	Bl	Cla F318	Ros	L4IH	318	p	CD	81	61	31 1/4	41x2 1/4	54 1/2x3		
2298	5.3	200	33.7	80-2800	L	L	L	7-3	9%	FP	Pe	Zen	M	AL	DR	P.B.B	Yo	Bl	Cla F318	Ros	L4IH	318	p	CD	81	61	31 1/4	41x2 1/4	54 1/2x3		
3298	5.3	200	33.7	80-2800	L	L	L	7-3	9%	FP	Pe	Zen	M	AL	DR	P.B.B	Yo	Bl	Cla F318	Ros	L4IH	318	p	CD	81	61	31 1/4	41x2 1/4	54 1/2x3		
4298	4.8	240	45.9	107-2600	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 632-5	Ros	L4IH	620	p	CD	115	72 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
5398	4.8	234	39.6	99-2800	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Cla F318	Ros	L4IH	380	p	CD	81	61	31 1/4	41 1/2x2 1/4	54 1/2x3		
6398	4.8	234	39.6	99-2800	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 610-103	Ros	W2IM	326	p	CD	88 1/2	65	34 1/4	41 1/2x2 1/4	54 1/2x3		
74298	4.8	234	39.6	99-2800	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 610-103	Ros	W2IM	405	p	CD	94	70 1/4	34 1/4	41 1/2x2 1/4	54 1/2x3		
84298	4.8	250	45.9	107-2600	L	L	L	7-3	11 1/4%	EP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 632-5	Ros	L4IH	620	p	CD	96 1/2	80 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
94298	4.8	250	45.9	107-2600	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 610-103	Ros	W2IM	620	p	CD	96 1/2	80 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
105298	4.8	250	45.9	111-2200	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 632-5	Ros	W2IM	620	p	CD	96 1/2	80 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
115298	4.8	250	45.9	111-2200	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 632-5	Ros	W2IM	620	p	CD	96 1/2	80 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
125298	4.8	250	45.9	111-2200	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 632-5	Ros	W2IM	620	p	CD	96 1/2	80 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
135298	4.8	250	45.9	111-2200	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 632-5	Ros	W2IM	620	p	CD	96 1/2	80 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
145298	4.8	250	45.9	111-2200	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 632-5	Ros	W2IM	620	p	CD	96 1/2	80 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
155298	4.8	250	45.9	111-2200	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 632-5	Ros	W2IM	620	p	CD	96 1/2	80 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
165298	4.8	250	45.9	111-2200	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 632-5	Ros	W2IM	620	p	CD	96 1/2	80 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
175298	4.8	250	45.9	111-2200	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 632-5	Ros	W2IM	620	p	CD	96 1/2	80 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
185298	4.8	250	45.9	111-2200	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 632-5	Ros	W2IM	620	p	CD	96 1/2	80 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
195298	4.8	250	45.9	111-2200	L	L	L	7-3	11 1/4%	FP	Pe	Zen	M	AL	DR	D.Fu	Yo	Bl	Shu 632-5	Ros	W2IM	620	p	CD	96 1/2	80 1/2	31 1/4	41 1/2x2 1/4	54 1/2x3		
20514	4.9	330	48.0	110-2200	L	L	L	7-3	12%	PC	Ha	Str	M	AL	AL	P.B.L	Yo	Spl	Shu 15592B	Ros	L4IHV	546	G	CD	142	83	34 1/4	40x2 1/4	54x3		
215298	4.9	330	48.0	110-2200	L	L	L	7-3	12%	PC	Ha	Str	M	AL	AL	P.B.L	Yo	Spl	Shu 15592B	Ros	L4IHV	546	G	CD	142	83	34 1/4	40x2 1/4	54x3		
225298	4.9	330	48.0	110-2200	L	L	L	7-3	12%	PC	Ha	Str	M	AL	AL	P.B.L	Yo	Spl	Shu 15592B	Ros	L4IHV	546	G	CD	142	83	34 1/4	40x2 1/4	54x3		
235298	4.9	330	48.0	110-2200	L	L	L	7-3	12%	PC	Ha	Str	M	AL	AL	P.B.L	Yo	Spl	Shu 15592B	Ros	L4IHV	546	G	CD	142	83	34 1/4	40x2 1/4	54x3		
245298	4.9	330	48.0	110-2200	L	L	L	7-3	12%	PC	Ha	Str	M	AL	AL	P.B.L	Yo	Spl	Shu 15592B	Ros	L4IHV	546	G	CD	142	83	34 1/4	40x2 1/4	54x3		
255298	4.9	330	48.0	110-2200	L	L	L	7-3	12%	PC	Ha	Str	M	AL	AL	P.B.L	Yo	Spl	Shu 15592B	Ros	L4IHV	546	G	CD	142	83	34 1/4	40x2 1/4	54x3		
265298	4.9	330	48.0	110-2200	L	L	L	7-3	12%	PC	Ha	Str	M	AL	AL	P.B.L	Yo	Spl	Shu 15592B	Ros	L4IHV	546	G	CD	142	83	34 1/4	40x2 1/4	54x3		
275298	4.9	330	48.0	110-2200	L	L	L	7-3	12%	PC	Ha	Str	M	AL	AL	P.B.L	Yo	Spl	Shu 15592B	Ros	L4IHV	546	G	CD	142	83	34 1/4	40x2 1/4	54x3		
285298	4.9	330	48.0	110-2200	L	L	L	7-3	12%	PC	Ha	Str	M	AL	AL	P.B.L	Yo	Spl	Shu 15592B	Ros	L4IHV	546	G	CD	142	83	34 1/4	40x2 1/4	54x3		
295298	4.9	330	48.0	110-2200	L	L	L	7-3	12%	PC	Ha	Str	M	AL	AL	P.B.L	Yo	Spl	Shu 15592B	Ros	L4IHV	546	G	CD	142	83	34 1/4	40x2 1/4	54x3		
305298	4.9	330	48.0	110-2200	L	L	L	7-3	12%	PC	Ha	Str	M	AL	AL	P.B.L	Yo	Spl	Shu 15592B	Ros	L4IHV	546	G	CD	142	83	34 1/4	40x2 1/4	54x3		
31279	4.0	201	32.4	63-2200	L	L	L	7-3	8%	CC	HS	Zen	V	DR	DR	P.Ow	Mo	Own	Own 503	Ros	B04IMV	714	G	TD	106	72	34	48x3	56x3		
32525	4.5	358	48.6	123-2200	L	L	L	7-3	17%	FP	Ha	Zen	M	DR	DR	P.Ow	Mo	Own	Own 503	Ros	B04IMV	714	G	TD	106	72	34	48x3	56x3		
33648	4.4	460	60	140-2100	L	L	L	7-3	17%	FP	Ha	Zen	M	DR	DR	P.Ow	Mo	Own	Own 503	Ros	B04IMV	714	G	TD	106	72	34	48x3	56x3		
34263	4.7	163	31.5	68-2700	L	L	L	7-3	10%	FP	No	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 30000H	Ros	L4IH	249	a	TX	108	60	31 1/4	38x2 1/4	52x2 1/4		
35263	4.7	163	31.5	68-2700	L	L	L	7-3	10%	FP	No	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 30000H	Ros	L4IH	249	a	TX	108	60	31 1/4	38x2 1/4	52x2 1/4		
36298	4.7	163	31.5	68-2700	L	L	L	7-3	10%	FP	No	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 30000H	Ros	L4IH	249	a	TX	108	60	31 1/4	38x2 1/4	52x2 1/4		
37282	4.7	176	37.3	73-2700	L	L	L	7-3	10%	FP	No	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 30000H	Ros	L4IH	249	a	TX	108	60	31 1/4	38x2 1/4	52x2 1/4		
38339	4.2	121	38.4	76-2400	L	L	L	7-3	13%	FP	No	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 30000H	Ros	L4IH	249	a	TX	108	60	31 1/4	38x2 1/4	52x2 1/4		
39282	4.7	176	37.3	73-2700	L	L	L	7-3	10%	FP	No	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 30000H	Ros	L4IH	249	a	TX	108	60	31 1/4	38x2 1/4	52x2 1/4		
40393	4.9	260	42.1	103-2600	L	L	L	7-3	11%	FP	No	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 33000H	Ros	L4IHV	394	a	FD	120	72	31 1/4	40x2 1/4	52x3		
41415	4.9	260	42.1	103-2600	L	L	L	7-3	11%	FP	No	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 33000H	Ros	L4IHV	394	a	FD	120	72	31 1/4	40x2 1/4	52x3		
42393	4.9	260	42.1	103-2600	L	L	L	7-3	11%	FP	No	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 33000H	Ros	L4IHV	394	a	FD	120	72	31 1/4	40x2 1/4	52x3		
43393	4.9	260	42.1	103-2600	L	L	L	7-3	11%	FP	No	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 33000H	Ros	L4IHV	394	a	FD	120	72	31 1/4	40x2 1/4	52x3		
44377	4.9	258	38.4	92-2300	L	L	L	7-3	11%	FP	No	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 35100H	Ros	L4IHV	455	a	FD	120	72	31 1/4	42x2 1/4	56x3 1/2		
45453	4.8	300	48.6	98-2200	L	L	L	7-3	14%	CC	Ha	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 35100H	Ros	L4IHV	455	a	FD	120	72	31 1/4	42x2 1/4	56x3 1/2		
46501	4.9	330	48.6	114-1900	L	L	L	7-3	12%	CC	Ha	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 36020N	Ros	L4IHV	602	a	FD	120	72	31 1/4	42x2 1/4	56x3 1/2		
47468	4.4	322	43.3	125-2400	L	L	L	7-3	10%	FP	No	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 36020N	Ros	W2ImV	407	a	FD	132	84	33 1/4	42x3	56x4		
48507	4.3	358	48.6	114-1900	L	L	L	7-3	10%	CC	Ha	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 36020N	Ros	W2ImV	407	a	FD	132	84	33 1/4	42x3	56x4		
49572	4.4	358	48.6	114-1900	L	L	L	7-3	10%	CC	Ha	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 36020N	Ros	W2ImV	407	a	FD	132	84	33 1/4	42x3	56x4		
50572	4.4	358	48.6	114-1900	L	L	L	7-3	10%	CC	Ha	Zen	M	DR	DR	P.B.L	Pe	Spl	Tim 36020N	Ros	W2ImV	407	a	FD	132	84	33 1/4				







Line Number	ENGINE DETAILS										FUEL SYST.	ELEC. TRICAL	FRONT AXLE	BRAKES			BODY MOUNTING DATA			SPRINGS			Auxiliary Type									
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	Piston Material	MAIN BEARINGS					Governor Make	Carburetors Make	Fuel Feed	Ignition System Make	Generator, Starter Make	Clutch Type and Make	Radiator Make	Universals Make	Make and Model		Steering Gear Make	SERVICE		Hand Location, Type	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear
									Number and Diameter	Length															Make Location Type Operation	Lining Area						
1268	4.9	17.5	27.3	75-2800	L	C	A	7-2 1/2	12	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IH	289	a	21	105	60	34	40x2 1/2	52x2 1/2	54x3	C	
1269	4.9	17.5	27.3	75-2800	L	C	A	7-2 1/2	12	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IH	289	a	21	116	60	34	40x2 1/2	52x2 1/2	54x3	C	
1309	4.9	20.0	31.5	85-2800	L	C	A	7-2 1/2	12	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IH	344	a	FD	124	68	34	44x3	54x3	54x3	C	
1358	4.9	23.0	36.4	110-2800	L	C	A	9-2 1/2	10 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	390	a	FD	143	83	34	44x3	56x3 1/2	54x3	C	
1485	4.9	15.0	27.3	76-2800	L	C	A	7-2 1/2	10 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IH	380	G	TX	129 1/2	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1486	4.9	15.0	27.3	76-2800	L	C	A	7-2 1/2	10 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	452	G	TX	129 1/2	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	452	G	TX	129 1/2	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	578	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539	4.9	22.5	38.4	73-2200	L	C	A	7-2 1/2	13 1/2	CC	No	Str	M	DR	DR	P.O.W	Ow	Cle	Own	Ros	L4IHV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3	50x3	C	
1539																																

## Six-Wheelers

5	B'kway	180SBT	2C	5-7½	4350	212	224	28000	9795	B8.25/20	BD8.25/20	Con 32B	6-4¼x4¼	Fu 5-A-38	U5	Op	Tim	SBT-251	BF	T	6.14	48.5	8¼x3¾x½	B	
6	Corbitt.	168FD6	2-3		5500	Op	Op		7010	B6.50/20	DB6.50/20	Con E602	6-4¼x4¼	Fu 5-A-38	U5	A	2	Tim	SD75H	2F	R	7.36	Opt	7x3¼x¼	B
7	(3).	168FD6	6	2¼-4	3900	Op	Op		5140	B7.50/20	DB7.50/20	Lye AEF	8-3¼x4¼	Fu 5-A-53	U5	A	2	Tim	SD75H	2F	R	7.36	Opt	8x3¼x¼	B
8		20SW6	4R	3-5	5720	Op	Op		9000	B7.50/20	DB7.50/20	Con 20R	6-4¼x4¼	BL 615	U5	No	Tim	SW151W	W/2F	R	Opt	Opt	8x3¼x¼	B	
9		28SW6	4R	5-7½	6350	Op	Op		10000	B7.50/20	DB7.50/20	Con 21R	6-4¼x4¼	BL 507	U5	No	Tim	SW151W	W/2F	R	Opt	Opt	8x3¼x¼	B	
10		28SD6	4R	5-7½	8900	Op	Op		1700	B8.25/20	DB8.25/20	Con 22R	6-4¼x4¼	Fu 5A53	U5	A	2	Tim	SD251W	W/2F	R	8.44	Opt	9x3¼x¼	C
11		36SW6	4R	7½-10	8800	Op	Op		11500	P36x8	DB36x8	Con 21R	6-4¼x4¼	BL 607	A	7	No	Tim	SW310W	W/2F	R	Opt	Opt	10¼x3¼x½	T
12		36SFD6	6	7½-10	12300	Op	Op		14600	B9.00/22	DB9.00/22	Her HXB	6-5x6	BL 734	U4	A	3	Tim	SD320W	W/2F	R	8.15	Opt	10¼x3¼x½	T
13		40SW6	4R	10-15	11000	Op	Op		13000	P38x9	DB38x9	Con 16H	6-4¼x5½	BL 707	A	7	No	Tim	SW420W	W/2F	R	Opt	Opt	10¼x3¼x½	T
14		45SFD6	6	10-15	16900	Op	Op		15400	B9.75/22	DB9.75/22	Her HXC	6-5¼x6	BL 734	U4	A	3	Tim	SD420W	W/2F	R	8.15	Opt	10¼x3¼x½	T
15	Day Elder	150	3		1645	159	189	15000	5400	B6.50/20	DB6.50/20	Her JXB	6-3¼x4¼	WG T9	U4	No	Tim	SBT75	BF	H	5.60	36.2	7x3¼x¼	C	
16		285	4R	8	5295	205	234	29500	12000	B8.25/20	DB8.25/20	Her RXC	6-3¼x4¼	BL 534	U4	No	Tim	SD225H	WF	H	7.00	47	10x3¼x¼	C	
17		345	10	2	6395	105	234	34500	12500	B8.25/20	DB8.25/20	Her RXC	6-3¼x4¼	BL 538	U5	No	Tim	SD320W	WF	H	7.00	47	10x3¼x¼	C	
18		345	10	2	6395	105	234	34500	12500	B8.25/20	DB8.25/20	Her RXC	6-3¼x4¼	BL 725	U5	No	Tim	SD420W	WF	H	9.0	63.6	10x3¼x¼	C	
19	Diamond T	801	4R	4	4140	189	219	21000	8500	P36x8	DB36x8	Her YXC	6-4¼x4¼	BL 55	A	7	No	Own	WF	H	Opt	Opt	6¼x3¼x½	P	
20		1201	4R	6	5600	180	210	28000	11000	P34x7	DP34x7	Her RXB	6-4¼x5½	BL 60	A	7	No	Tim	SW200	WF	R	Opt	Opt	9x3¼x¼	P
21		1602	4R	8	6400	175	210	36000	11700	P36x8	DB36x8	Her RXC	6-4¼x5½	BL 60	A	7	No	Tim	SW320	WF	R	Opt	Opt	9x3¼x¼	P
22		1603	4R	8	7500	184	224	36000	12500	P36x8	DB36x8	Wau GRB	6-5x6	BL 70	A	7	No	Tim	SW320	WF	R	Opt	Opt	9x3¼x¼	P
23	Dodge	G850	2C	1¼-4	935	153	153	12000	3650	B6.00/20	P32x6	Own	6-3¼x4¼	Own	U4	A	3	Tim	SW251	WF	H	5.55	36.7	7½x2¾x½	C
24	Bros	F875	3	3-9	3995	221	221	36000	8250	B7.50/20	DB7.50/20	Wau 6-90	6-3¼x5½	Own	U4	A	3	Tim	SW251	WF	H	5.55	36.7	7½x2¾x½	C
25	Fagool	326BP	2R	5-6	2150	196	226	26000	72600	B7.50/20	DB7.50/20	Wau 6-110	6-4x4¼	BL 234	U4	No	Tim	SBT151	BF	R	7.4	47.4	6x3¼x¼	C	
26		326BP	2R	5-6	4350	195	220	30400	9700	B9.00/20	DB9.00/20	Wau 6-110	6-4x4¼	BL 524	U4	No	Tim	SBT151	BF	R	7.8	56.8	8x3¼x¼	C	
27		8-46HP	4R	8	7800	195	220	40500	14100	B9.75/20	DB9.75/20	Wau 6-125	6-4¼x5½	BL 734	U4	A	3	Tim	Own	WF	R	5.7	120	8x3¼x¼	C
28		8-46AL	4R	8	8800	195	220	40500	11950	B9.75/20	DB9.75/20	Wau 6-125	6-4¼x5½	BL 734	U4	A	3	Tim	Own	WF	R	5.7	120	15x4x½	C
29		10-46RB	4R	10	9000	232	232	56000	15300	B9.75/20	DB9.75/20	Wau 6RB	6-5x6	BL 734	U4	A	3	Tim	Own	WF	R	6.2	135	8x4¼x½	T
30		10-46AL	4R	10	10000	232	232	56000	13200	B9.75/20	DB9.75/20	Wau GRB	6-5x6	BL 734	U4	A	3	Tim	Own	WF	R	6.2	135	15x4x½	T
31	Federal	22	4R	3	1670	172	198	15000	5000	B6.00/20	DB6.00/20	Her JXB	6-3¼x4¼	Wf T9	U4	No	Cl	114	WF	R	6.38	40.8	8¼x2½x½	T	
32		22	4R	3	1670	172	198	15000	5000	B6.00/20	DB6.00/20	Her JXB	6-3¼x4¼	Wf T9	U4	No	Cl	114	WF	R	6.38	40.8	8¼x2½x½	T	
33		36	2R	5-6	2975	192	218	24000	7700	B7.50/20	DB7.50/20	Wau 6MK	6-4¼x4¼	Cl	A	908	2F	H	7.16	58.2	10x3¼x¼	T			
34		37	4R	4½	3350	192	218	24000	8100	B7.50/20	DB7.50/20	Wau 6MK	6-4¼x4¼	Cl	A	908	2F	H	7.16	58.2	10x3¼x¼	T			
35	FWD	MX6	6	10-15	12255	200	Op	48000	17800	B13.50/20	DB13.50/20	Wau RB	6-5x6	BL 714	U4	A	2	Wls	131TW	2F	H	8.36	173	10x3x½	T
36		X6	4F	6-10	7385	170	Op	36000	12000	B9.75/20	DB9.75/20	Wau SRK	6-4¼x5½	Own U	A	5	Op	Own X	BF	H	7.35	73	7x3x½	C	
37	Hendrick'n	21D	4R	2-6	3500	Op	Op	21000	6800	B7.50/20	DB7.50/20	Wau 6-90	6-3¼x4¼	Fu 5-A-38	U5	No	Own	985	SF	H	Opt	Opt	8x3x½	C	
38		25D	4R	3-8	3900	Op	Op	25000	10800	B8.25/20	DB8.25/20	Wau 6-110	6-4x4¼	Fu 5-A-38	U5	No	Own	985	SF	H	Opt	Opt	8x3x½	C	
39		32D	4R	4-9	4900	Op	Op	32000	10300	B9.00/20	DB9.00/20	Wau 6-125	6-4¼x5½	Fu 5-A-53	U5	No	Own	985	SF	H	Opt	Opt	8x3x½	C	
40		38P	4R	5-2	5500	Op	Op	38000	1200	B9.75/20	DB9.75/20	Wau 6-125	6-4¼x5½	Fu 5-A-53	U5	No	Own	2513X	SF	H	Opt	Opt	8x3x½	P	
41		40D	4R	12	8000	Op	Op	40000	13200	B9.75/20	DB9.75/20	Wau 6-125	6-4¼x5½	Fu 5-A-53	U5	No	Eat	44000	2F	R	Opt	Opt	8x3x½	P	
42		44D	4R	12	9000	Op	Op	44000	14000	B9.75/20	DB9.75/20	Wau 6RB	6-5x6	BL 70-7	A	7	No	Eat	44000	2F	R	Opt	Opt	8x3x½	P
43	Hug	97LD	4R	7½	8120	148	148	50000	12990	B10.50/20	DB10.50/20	Bud L525	6-4¼x6	Fu 5A530	U5	A	2	Wls	SD310AH	2F	R	9.11	133	9x4¼x½	I
44		99	4R	10	9650	148	148	64500	15100	B10.50/20	DB10.50/20	Bud GF6	6-4¼x6	BL 714-703	U5	A	2	Wls	SD420AH	2F	R	10.13	139	9x4¼x½	I
45	Ind. 95SBT-151	2C3			1875	168	186	20000	6125	P32x6	DP32x6	Her JXC	6-3¼x4¼	BL 224	U4	No	Tim	SBT151	SF	T	7.4	45.8	7½x2¾x½	T	
46		95SW 75	4R	3	1900	168	186	20000	5800	P32x6	DP32x6	Her JXC	6-3¼x4¼	BL 224	U4	No	Tim	SBT151	SF	T	7.4	45.8	7½x2¾x½	T	
47		17ASW151	4R	3	3450	188	212	24000	7500	B8.25/20	DB8.25/20	Her YXC	6-4¼x4¼	BL 334I	U4	No	Tim	SW151	WF	T	6.1	37.8	8x3¼x¼	T	
48		17SD251	4R	4	3900	188	224	28000	8850	P34x7	DP34x7	Her YXC	6-4¼x4¼	BL 524	U4	Op	Tim	SBT251	SF	T	6.1	37.8	8x3¼x¼	T	
49		17SW251	4R	4	3900	188	224	28000	9500	P34x7	DP34x7	Her YXC	6-4¼x4¼	BL 524	U4	Op	Tim	SW251	WF	T	6.2	38.1	8x3¼x¼	T	
50		16X6	6	3	6650	170	...	20000	8000	B7.00/20	DB7.00/20	Her RXB	6-4¼x5½	BL 5351	U4	U	2	Wls	2F	H	4.66	30.8	8x3x¼	C	
51		18X6	6	3	6650	170	...	28000	10500	B8.25/20	DB8.25/20	Her RXC	6-4¼x5½	BL	U4	A	2	Wls	2F	H	7.83	110	8¼x3x½	C	
52		20X6	6	4½	8950	188	...	36000	14000	B9.00/20	DB9.00/20	Her HXC	6-5¼x6	BL	U4	A	2	Wls	2F	R	8.95	84.0	9x3x¼	C	
53		22X6	6	5	1200	200	...	40000	16000	B9.75/20	DB9.75/20	Her HXD	6-5¼x6	BL	U4	A	2	Wls	2F	R	9.1	86.0	8x3x¼x½	C	
54	Ken	89SBT	2C	7	2380	188	224	25500	7350	P32x6	DP32x6	Her JXC	6-3¼x4¼	BL 234	U4	Op	Tim	SBT151	WF	T	7.4	45.5	8x3x¼	T	
55		1278S	2C	7	3450	188	224	25500	8000	B9.00/20	DB9.00/20	Her YXC2	6-4¼x4¼	BL 334	U4	Op	Tim	SBT151	SF	A	7.8	48	8x3x¼	T	
56		146SBT	2C	9	4200	188	224	33000	9000	B9.00/20	DB9.00/20	Bud K393	6-4¼x4¼	BL 334	U4	Op	Tim	SBT251	SF	A	7.8	48	8x3x¼	T	
57		D-146	SW	9	7500	210	240	33000	10500	B9.00/20	DB9.00/20	Bud 6D-415	6-4x5½	BL 5341	U4	Op	Tim	SW251sw	2F	H	7.5	47.6	8x3x¼	T	
58		186SDT	2C	10	6450	205	235	38000	10500	B9.00/20	DB9.00/20	Her YXC2	6-4¼x4¼	BL 1554	U4	A	3	Tim	SDt310W	2F	H	7.33	104	9x3x¼	T
59		241SDT	2C	10	6850	205	235	40500	11000	B9.00/20	DB9.00/20	Her RXB	6-4¼x5½	BL 714	U4	A	3	Tim	SDt310W	2F	H	7.33	85.5	9x3x¼	T
60		D-84-C	4R	10	10250	210	240	40500	14300	B9.75/20	DB9.75/20	Cum HA6	6-4¼x6	BL 714	U4	A	3	Tim	SW320W	WF	H	6.8	92	8x3x¼	C
61		346A	4R	10	8800	210	240	40500	13000	B9.75/20	DB9.75/20	HaS 160	6-4¼x5½	BL 714	U4	A	3	Tim	SW310W	WF	H	7.25	84.5	8x3x¼	C
62		346B	4R	10	8550	210	240	40500	13000	B9.75/20	DB9.75/20	Bud GF-6	6-4x6	BL 714	U4	A	3	Tim	SW310W	WF	H	7.25	84.5	8x3x¼	C
63		346C	4R	10	9500	210	240	40500	14500	B9.75/20	DB9.75/20	HaS 175	6-5x6	BL 714	U4	A	3	Tim	SW410W	WF	H	7.60	103	8x3x¼	C
64		346D	4R	10	10200	210	240	50100	14500	B9.75/20															

†—Denotes new model or change in specifications.



Line Number	ENGINE DETAILS										Oiling System Type	Governor Make	Carburetors Make	FUEL SYST.	ELEC-TRICAL	Generator, Starter Make	Clutch Type and Make	Radiator Make	Universal Make	FRONT AXLE	Steering Gear Make	BRAKES		BODY MOUNT-ING DATA		SPRINGS		Auxiliary Type				
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	Piston Material	MAIN BEARINGS													Make and Location, Operation	Lining Area	Drum Material	Hand Location, Type	Cab to Rear of Frame	Cab to Rear Axle		Width of Frame	Front	Rear	
									Number and Diameter	Length																						
1360	4.4	240	40.8	90-2500	L	C	A	7-2 1/2	13	FP	Opt	Zen	M	DR	DR	P.L.I	Pe	Spl	Wis F56B	Ros	L41H	345	A	TX	Opt	Opt	34	40x2 1/2	54x3	N		
2360	4.4	240	40.8	90-2500	L	C	A	7-2 1/2	13	FP	Opt	Zen	M	DR	DR	P.L.I	Pe	Spl	Wis F-75AB	Ros	L41H	345	A	TX	Opt	Opt	34	40x2 1/2	54x3	N		
3428	4.4	240	40.8	90-2500	L	H	C	7-2 1/2	13	FP	Opt	Zen	M	DR	DR	P.L.I	Pe	Spl	Wis F211	Ros	L41HV	660	A	TD	Opt	Opt	34	40x2 1/2	54x3	N		
4500	4.5	340	45.9	118-2600	L	H	C	7-2 1/2	13	FP	Opt	Zen	M	DR	DR	P.L.I	Pe	Spl	Wis F311	Ros	L41HV	660	A	TD	Opt	Opt	34	40x2 1/2	54x3	N		
5251	4.5	160	25.6	50-2000	H	G	C	7-2 1/2	8	FP	Opt	No	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	H	21	21	115 1/2	81 1/2	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N			
6315	4.5	200	33.7	72-2500	L	H	C	7-2 1/2	12	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	H	21	21	115 1/2	81 1/2	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N			
7381	4.5	240	40.8	85-2400	L	H	C	7-2 1/2	12	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	H	21	21	115 1/2	81 1/2	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N			
8398	4.6	210	36.5	56-2400	L	H	C	7-2 1/2	12	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	H	21	21	115 1/2	81 1/2	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N			
9411	4.6	265	40.8	91-2300	L	H	C	7-2 1/2	12	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	H	21	21	115 1/2	81 1/2	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N			
10411	4.6	265	40.8	91-2300	L	H	C	7-2 1/2	12	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	H	21	21	115 1/2	81 1/2	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N			
11462	4.5	300	45.9	102-2400	L	G	C	7-3	13	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	M	Ha	OT/4XM	238	G	4X	132	93	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N
12462	4.5	300	45.9	102-2400	L	G	C	7-3	13	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	M	Ha	OT/4XM	238	G	4X	132	93	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N
13517	4.6	330	51.3	110-2300	L	G	C	7-3	13	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	M	Ha	OT/4XM	238	G	4X	132	93	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N
14517	4.6	330	51.3	110-2300	L	G	C	7-3	13	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	M	Ha	OT/4XM	238	G	4X	132	93	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N
15617	4.6	330	51.3	110-2300	L	G	C	7-3	13	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	M	Ha	OT/4XM	238	G	4X	132	93	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N
16677	4.4	460	60	145-2000	F	G	H	7-3 1/2	13	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	M	Ha	OT/4XM	238	G	4X	132	93	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N
17462	5.2	330	45.9	125-2500	F	G	H	7-3 1/2	13	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	M	Ha	OT/4XM	238	G	4X	132	93	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N
18462	5.2	330	45.9	125-2500	F	G	H	7-3 1/2	13	PC	Opt	Wa	Zen	M	DR	DR	P.L.I	Pe	Blo	Ow	M	Ha	OT/4XM	238	G	4X	132	93	36	42 1/2 x 2 1/2	52 1/2 x 2 1/2	N
19282	5.4	176	33.7	73-2800	L	G	A	7-2 1/2	10	FP	Opt	Str	MAL	AL	P.B.L	Yo	Spl	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	N
20298	4.7	190	33.7	70-2600	L	G	A	7-2 1/2	13	PC	Opt	Str	MAL	AL	P.B.L	Yo	Spl	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	N
21361	4.7	235	38.4	82-2400	L	G	A	7-2 1/2	13	PC	Opt	Str	MAL	AL	P.B.L	Yo	Spl	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	N
22384	4.7	235	38.4	82-2400	L	G	A	7-2 1/2	13	PC	Opt	Str	MAL	AL	P.B.L	Yo	Spl	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	N
23478	4.4	315	5.1	104-2200	L	G	A	7-3 1/2	14	PC	Opt	Str	MAL	AL	P.B.L	Yo	Spl	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	N
24707	4.5	455	60	148-2000	L	G	A	7-3 1/2	17	PC	Opt	Str	MAL	AL	P.B.L	Yo	Spl	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	N
25779	4.5	505	66.2	163-2000	L	G	A	7-3 1/2	17	PC	Opt	Str	MAL	AL	P.B.L	Yo	Spl	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	Wis	N
26228	5.1	156	27.3	68-2800	L	G	A	7-2 1/2	10	FP	Opt	No	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
27282	5.3	193	33.7	84-2800	L	G	A	7-2 1/2	10	FP	Opt	No	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
28339	5.0	235	38.4	94-2800	L	G	A	7-2 1/2	13	PC	Opt	No	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
29383	5.0	265	43.3	106-2800	L	G	A	7-2 1/2	13	PC	Opt	No	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
30383	5.0	265	43.3	106-2800	L	G	A	7-2 1/2	13	PC	Opt	No	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
31428	4.4	280	45.9	94-2200	L	G	A	7-3	14	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
32478	4.4	320	51.3	104-2200	L	G	A	7-3	14	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
33292	4.9	350	51.3	114-2200	L	G	A	7-3 1/2	17	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
34707	4.5	460	60	148-2000	L	G	A	7-3 1/2	17	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
35779	4.5	505	66.2	164-2000	L	G	A	7-3 1/2	17	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
36263	5.1	164	31.5	68-2800	L	G	A	7-2 1/2	10	FP	Opt	No	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
37282	5.3	193	33.7	84-2800	L	G	A	7-2 1/2	10	FP	Opt	No	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
38339	4.7	210	38.4	70-2000	L	G	C	7-2 1/2	13	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
39383	4.7	265	43.3	91-2000	L	G	C	7-2 1/2	13	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
40383	4.7	265	43.3	91-2000	L	G	C	7-2 1/2	13	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
41383	4.7	265	43.3	91-2000	L	G	C	7-2 1/2	13	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
42383	4.4	297	48.6	95-2000	L	G	A	7-3	15	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
43383	4.4	297	48.6	95-2000	L	G	A	7-3	15	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
44383	4.4	297	48.6	95-2000	L	G	A	7-3	15	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
45329	4.9	350	51.3	112-2000	L	G	A	7-3 1/2	17	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
46329	4.9	350	51.3	112-2000	L	G	A	7-3 1/2	17	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
47329	4.5	440	60	142-2000	L	G	A	7-3 1/2	17	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
48355	4.5	555	72.8	180-2000	L	G	A	7-3 1/2	17	PC	Opt	Ha	Zen	M	DR	DR	P.B.B	Yo	Spl	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	TWH	N
49381	4.5	240	40.8	85-2200	L	G	A	7-2 1/2	12	FP	Opt	Ow	Zen	P	DR	DR	P.Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	N
50362	4.5	300	46.0	100-2000	L	G	C	7-3	13	FP	Opt	Ow	Zen	P	DR	DR	P.Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	N
51361	4.5	330	51.3	110-2000	L	G	C	7-3	13	FP	Opt	Ow	Zen	P	DR	DR	P.Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	N
52677	4.5	440	60	150-2000	L	G	C	7-3 1/2	10	PC	Opt	Ow	Zen	P	DR	DR	P.Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	Ow	N
54677	4.5	440	60	150-20																												



Line Number	MAKE AND MODEL	Wheels Driven—6—Wheeled	GENERAL See Keynotes					TIRE SIZE		MAJOR UNITS										FRAME		
			Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. Stripped	Front	Rear	ENGINE		TRANSMISSION		REAR AXLE				Side Rail Dimensions	Type		
											Make and Model	No. of Cylinders Bore and Stroke	Make and Model	Location and Forward Speeds	Aux. Location and Speeds	Make and Model	Gear and Type	Drive and Torque			GEAR RATIOS In High In Low	
1	La Fran-R. Q6	4R	9-12	11605	216	260	40000	14900	110.50/20	DB10.50/20	Own 312B	12-4x5	BL 714	U4	No	Tim SWD410	WF	Opt	Opt	12x3 1/2x3 1/2	L	
2	Le Moon (9) 701	4R	5-6	4475	187	199	8500	8500	B8.25/20	DB8.25/20	Lyc AEC	8-3 1/2x4 1/2	Fu VUOG	U5	No	Ti 63703-97H	WF	R	6.20	43.8	7x4 1/2x4 1/2	B
3	..... (9) 801	4R	6-7	5100	187	199	9720	9720	B9.00/20	DB9.00/20	Lyc AEC	8-3 1/2x4 1/2	Fu VUOG	U5	No	Ti 65703-97H	WF	H	6.75	47.7	7x4 1/2x4 1/2	B
4	..... 802	4R	6-7	5350	187	199	9800	9800	B9.00/20	DB9.00/20	Wau 6SRL	6-4 1/2x5 1/2	Fu VUOG	U5	No	T65703-97W	WF	H	6.75	47.7	7x4 1/2x4 1/2	B
5	..... 900	4R	7-8	6775	191	203	12000	12000	B9.75/20	DB9.75/20	Wau 6SR	6-4 1/2x5 1/2	BL 607	U4	No	Tim SW310W	WF	H	9.25	86.9	9x4 1/2x4 1/2	B
6	..... 1000	4R	8-10	7950	196	208	12600	12600	B9.75/24	DB9.75/24	Wau 6AB	6-4 1/2x5 1/2	BL 714	U4	3	Tim SW310W	WF	H	9.25	128	9x4 1/2x4 1/2	B
7	..... 1200	4R	10-12	8500	196	208	14000	14000	B9.75/24	DB9.75/24	Wau 6RB	6-5x5 1/2	BL 714	U4	3	Tim SW410W	WF	H	9.25	128	9x4 1/2x4 1/2	B
8	..... 1200D	4R	10-12	9750	196	208	14000	14000	B9.75/24	DB9.75/24	Cum.Die.H6	6-4 1/2x6	BL 735	U5	No	Tim SW410W	WF	H	7.6	47.6	9x4 1/2x4 1/2	B
9	Mack..... BX	4R	8-15	7950	178	207	12100	12100	B8.25/22	DB8.25/22	Own CF	6-4 1/2x5 1/2	Own BX	U4	No	Own BX6	2F	A	6.53	46.0	9 1/4x3 1/2x3 1/2	C
10	..... BQ	4R	8-15	9350	224	248	14500	14500	B9.75/22	DB9.75/22	Own BQ	6-4 1/2x5 1/2	Own AC	A4	No	Own BX6	2F	A	6.54	41.9	10 1/4x3 1/2x3 1/2	C
11	..... AC	4R	8-15	8500	217	257	14500	14500	P40x8	DP40x8	Own BQ	6-4 1/2x5 1/2	Own AC	J	4	Own AC	CD	R	9.26	59.4	8 1/2x3 1/2x3 1/2	C
12	..... AK	4R	8-15	9000	217	257	15900	15900	B9.75/22	DB9.75/22	Own BQ	6-4 1/2x5 1/2	Own AC	J	4	Own AC	CD	R	9.26	59.4	8 1/2x3 1/2x3 1/2	C
13	..... AP	4R	8-15	10500	217	257	14900	14900	P40x8	DP40x8	Own AP	6-5x6	Own AC	J	4	Own AC	CD	R	9.26	59.4	8 1/2x3 1/2x3 1/2	C
14	..... AP	4R	8-15	11000	217	257	16400	16400	B9.75/22	DB9.75/22	Own AP	6-5x6	Own AC	A4	No	Own AK6	2F	A	7.46	47.8	8 1/2x3 1/2x3 1/2	C
15	Mar.-Her. TH310A-6	10	10000	193	229	.....	14070	14070	B9.75/22	DB9.75/22	Her RNC	6-4 1/2x5 1/2	Fu 5-A-536	U5	A2	Own-Wis	2F	R	9.11	163	8 1/2x3 1/2x3 1/2	P
16	..... (13) TH315	6	12-13	12500	198	234	15420	15420	B9.75/22	DB9.75/22	Her HNB	6-5x6	BL 724	U4	A3	Own-Wis	2F	R	9.11	163	8 1/2x3 1/2x3 1/2	P
17	..... (13) TH320	6	15-18	14500	225	255	18450	18450	B10.50/24	DB10.50/24	Her HNC	6-5x6	BL 724	U4	A3	Own-Wis	2F	R	9.11	188	10x3 1/2x3 1/2	P
18	More-ED25M	4R	7	4067	184	Op	25000	8900	B8.25/20	DB8.25/20	Her WNC3	6-4 1/2x4	BL 334	U4	No	Tim 65000	W	R	7.50	46.0	9 1/4x3 1/2x3 1/2	T
19	land.HD34M	4R	10	5869	220	Op	34000	11000	B9.00/20	DB9.00/20	Her RNB	6-4 1/2x5 1/2	BL 724	U4	No	Tim 68720W	W	R	8.75	62.0	11x3 1/2x3 1/2	T
20	..... TD34	10	7607	221	Op	34000	9700	B9.00/20	DB9.00/20	Wau 6-110	6-4x4 1/2	Own UC7	U5	No	Own	BF	R	7.8	55.5	10x3 1/2x3 1/2	L	
21	Sterling FBT152	2R	8 1/2	4580	174	204	30400	9500	B9.00/20	DB9.00/20	Wau 6-110	6-4x4 1/2	Own UC7	U5	No	Own	BF	R	7.8	55.5	10x3 1/2x3 1/2	L
22	..... FDT152	2R	8 1/2	4705	174	204	30400	9700	B9.00/20	DB9.00/20	Wau 6-110	6-4x4 1/2	Own UC7	U5	No	Own	BF	R	7.8	55.5	10x3 1/2x3 1/2	L
23	..... FDS180	4R	8-10	8605	158	Op	36000	12850	P40x8	DP40x8	Wau AB	6-4 1/2x5 1/2	Own UC8	U4	A3	Tim 310	2F	R	9.1	113	15x3 1/2x3 1/2	L
24	..... FDS200	4R	10-12	9130	159	Op	40000	13550	P40x8	DP40x8	Wau RB	6-5x5 1/2	Own UC8	U4	A3	Tim 410	2F	R	9.1	113	15x3 1/2x3 1/2	L
25	..... FCS210	4R	15-18	10175	Op	Op	42000	14750	P40x8	DP40x8	Wau RB	6-5x5 1/2	Own UC8	U4	Op	Own	2F	R	8.85	58.8	12x3 1/2x3 1/2	L
26	..... FDT200	2R	12-12 1/2	7670	178	208	40000	12050	P40x8	DP40x8	Wau 6-125	6-4 1/2x5 1/2	Own UC8	U4	Op	Own	2F	R	8.85	58.8	12x3 1/2x3 1/2	L
27	..... FDT250	2R	16-16 1/2	8855	186	216	50000	13550	P42x9	DP42x9	Wau RB	6-5x5 1/2	Own UC8	U4	Op	Own	2F	R	8.85	58.8	12x3 1/2x3 1/2	L
28	..... FCT180	2R	10-10 1/2	7265	178	208	36000	11200	P36x8	DP36x8	Wau SRL	6-4 1/2x5 1/2	Own UC	U4	Op	Own	CD	R	8.2	54.5	12x3 1/2x3 1/2	L
29	..... FCT200	2R	12-12 1/2	7685	178	208	40000	11800	P40x8	DP40x8	Wau 6-125	6-4 1/2x5 1/2	Own UC	U4	Op	Own	CD	R	9.3	61.8	12x3 1/2x3 1/2	L
30	Ward 440TC	15	11000	240	246	44000	14000	B9.75/22	DB9.75/22	Cu. Die. HA	6-4 1/2x6	BL 735	A5	No	Tim SDT420W	WF	R	6.42	40.4	14x3 1/2x3 1/2	T	
31	LaFr. 440TR	15	9350	240	246	44000	13700	B9.75/22	DB9.75/22	Wau RB	6-5x5 1/2	BL 735	A5	No	Tim SBT420W	WF	R	6.42	40.4	14x3 1/2x3 1/2	T	
32	..... 340TM	7 1/2	4700	204	230	28000	9200	B8.25/20	DB8.25/20	Wau MK	6-4 1/2x4 1/2	BL 5352	U5	No	Tim SBT251H	SF	T	Opt	Opt	12x3 1/2x3 1/2	T	
33	..... 400T5	12	7100	203	241	40000	13000	B9.75/20	DB9.75/20	Wau 6-125	6-4 1/2x5 1/2	BL 5352	U5	No	Tim SW320W	WF	R	8.5	65.5	14x3 1/2x3 1/2	T	
34	Wht. 630SW251	4R	5-6	1212	193	205	10000	10000	B8.25/20	DB8.25/20	Own 7A	6-4 1/2x5 1/2	Own 4B	U4	No	Tim SW251	WF	R	6.75	44.2	8 1/2x3 1/2x3 1/2	C
35	..... 642SW320	4R	7-9	1212	193	205	10000	10000	B8.25/20	DB8.25/20	Own 5A	6-4 1/2x5 1/2	Own 10B	U5	No	Tim SW310W	WF	R	8.5	55.6	8 1/2x3 1/2x3 1/2	C
36	..... 643SW420	4R	9-11	1212	193	205	14400	14400	P40x8	DP40x8	Own 5A	6-4 1/2x5 1/2	Own 10B	U5	No	Tim SW410W	WF	R	10.2	69.1	18 1/2x3 1/2x3 1/2	C

—Denotes new model or change in specifications.

## Governors Throttle Costs

(CONTINUED FROM PAGE 25)

then choke them with a governor? From a volumetric efficiency standpoint you don't begin to realize their economies until you get them up to their high degree characteristics, so why do we throttle the engines?"

**D. J. JEWETT**, maintenance superintendent, *L. Bamberger, Newark, N. J.*—"I heartily agree with your thoughts, Mr. Lyon. The one question in my mind is: Where can we find a light delivery unit that hasn't an engine of that type—a 75 hp. motor when we want to use only about 40 hp.?"

**MR. LYON**: "The question in my mind is whether we are buying horsepower or torque. I buy torque. Just as soon as you put on your governor, you spoil your torque characteristics."

**MR. HANSON** (connection not revealed)—"I should say that in running your engine you will find that your maximum torque is always far below your maximum run. For that reason I would say that if you want fuel efficiency from your motor, govern it down to where you get the maximum torque or the maximum efficiency of the engine. In tests I have made I have found that fuel economy ceases at a certain speed."

**MR. LYON**: "I have never seen an engine in my life that at its peak of economy wasn't at its top characteristics."

**E. L. BARNES**, maintenance superintendent, *Kresge's, Newark, N. J.*—"It has been our practice to govern all jobs at the manufacturer's specifications. At that point we get the most efficient operation. As soon as we increase our gas and oil consumption goes up."

**MR. LITTLE**: "Perhaps I better explain my position in asking about the governor. Our cars are governed. The delivery problem outside of Chicago is a little different than it is in New York. We may start our deliveries near congested areas. Consequently we do not feel that a speed of 45 miles an hour is necessary, and we are governed at 35 miles an hour."

"We took 16 cars of the same make. Eight we governed and eight we did not, and we ran them for a year. We had an outside engineer come in and make a survey as to the value of the governor on the cars. I cannot give you the percentage of savings but it was enormous on tires and consumption of oil and gasoline. I grant that all of the conditions were not 100 per cent all the way, but taking the 16 cars we had a fair idea of what that operation meant."

"We have also had a reduction in our insurance as a result of our cars being governed. We are rather proud of our accident record, and we think that the use of governors has much to do with it. It has been brought out that it is difficult to get away quickly and that it is sometimes necessary to have all the speed possible. The question is: How often does a driver get into pinches like

that? It is recognized with insurance companies with which we work, and who come and make our inspections and talk to our men, that the greatest number of accidents in our area is through speed."

**H. K. FALLERIUS**, delivery superintendent, *Bloomington's, New York*—"Of course, when we talk about governors in the old four-cylinder cars the basic reason we put on governors from the mechanical point of view was to keep the motor r.p.m. down within the point of vibration. We found that as soon as we approached the point of vibration and went over, great deterioration took place. We equipped the cars with governors in order to save the motors."

"When we got the sixes we found that we could run the motor r.p.m. a little higher before we approached the point of vibration. Although that occurred at a higher truck speed, we felt that the governor was essential to avoid the motor's tearing itself apart."

"I can't say very much with regard to the eight-cylinder jobs, not having had very much experience with them yet. But I will confirm what the gentleman from Marshall Field stated, that if his car is governed at 35 as compared with another car governed at 45, naturally he will get greater economies, because we do run into wind resistance, we do run into more tire wear, and we know that oil consumption will go up considerably more at 45 than it will at 35 miles an hour."

"In governing our cars on suburban

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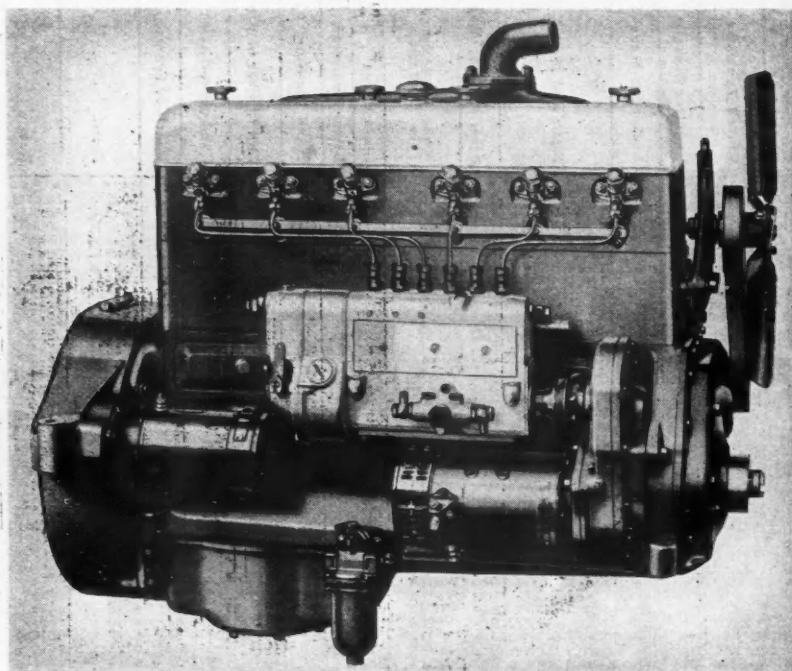
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**JUNE,**

Line Number	ENGINE DETAILS										SYST. FUEL	ELEC-TRICAL		FRONT AXLE	BRAKES		BODY MOUNT-ING DATA		SPRINGS											
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	MAIN BEARINGS		Oiling System Type		Governor Make	Carburetors Make		Fuel Feed	Ignition System Make	Generator, Starter Make	Clutch Type and Make	Radiator Make	Universals Make	Steering Gear Make	SERVICE		Hand Location, Type	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear	Auxiliary Type
								Number and Diameter	Length													Lining Area	Drum Material							
1754	5.1	510	76.7	240-2900	H	C	C	4-3 1/2	10	PC	No	Zen	M	DR	DR	dp. Lo	Ow	Blo	Tim 27450tw	Ros	W61A	782	Da	CD	111 1/2	216	34	44x3	None	N
420	5.2	300	44.4	130-2800	L	L	G	C 5-2 1/2	12 1/2	FP	Ha	Str	M	DR	DR	D.Fu	Ch	Spl	Tim 35000H	Ros	L61HV	525	a	CD	162	108	34	39x2 1/2	39x2 1/2	N
420	5.2	300	44.4	130-2800	L	L	G	C 5-2 1/2	12 1/2	FP	Ha	Str	M	DR	DR	D.Fu	Ch	Spl	Tim 35000H	Ros	L61HV	525	a	CD	162	108	34	39x2 1/2	46x3 1/2	N
462	4.5	300	45.9	98-2000	L	L	G	A 7-3	13 1/2	PC	Wa	Str	M	My	DR	D.Fu	Ch	Spl	Tim 35000tw	Ros	W61A	711	a	CD	162	108	34	39x2 1/2	46x3 1/2	N
549	4.5	300	45.9	98-2000	L	L	G	A 7-3	13 1/2	PC	Wa	Str	M	My	LN	D.BL	Ch	Spl	Tim 26045tw	Ros	W61A	966	a	CD	162	108	34	48x3 1/2	53x4	N
677	4.5	333	48.9	100-2000	L	L	G	A 4-3 1/2	11 1/2	PC	Wa	Str	M	My	LN	D.BL	Ch	Spl	Tim 26045tw	Ros	W61A	966	a	CD	162	108	34	48x3 1/2	53x4	N
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# THE WAUKESHA-COMET



## COMPRESSION IGNITION ENGINE



### "IT DOES NOT SMOKE"—TOO MUCH TO CLAIM!

A previous advertisement appearing in this paper made the statement that the Comet Diesel doesn't smoke. This was a paraphrase of the remark made by an astonished observer to whom the engine was being demonstrated. On sudden, quick acceleration, he was surprised at the absence of smoke. But, like every other internal combustion engine, Diesel or gasoline, under certain conditions the Waukesha Comet Diesel can be made to smoke. However, these conditions are not normal, and it is our firm belief that the Waukesha Comet Diesel is freer from smoke than any other modern Diesel.

In truck and bus operation in European cities, the Comet type Diesel has been remarkably successful. The London General Omnibus Co., Ltd., has adopted it as the standard for Diesel power—an outstanding endorsement.

The Waukesha Comet Diesel utilizes a wider range of fuels than the ordinary type Diesel. And it operates smoothly . . . with none of the roughness usually associated with automotive Diesels. For city and interurban trucks and buses and heavy haulage trucks and tractors up to 20 tons gross rating, it is an efficient and economical alternate for the 75-100 hp. gasoline engines now used. Write for Bulletin 913. Waukesha Motor Company, Waukesha, Wisconsin.

# WAUKESHA ENGINES





# Priceless

EXPERIENCE, DATA  
and KNOWLEDGE  
at your

## COMMAND

**B**LOOD BROTHERS' engineers have accumulated priceless experience, data and knowledge about the successful transmission of power. This valuable engineering experience makes Blood Brothers second to none when the building of specialized universal joint equipment is required.

Blood Brothers' engineers only ask for the opportunity of proving their ability. Your inquiry is invited.

**BLOOD BROTHERS  
MACHINE COMPANY**  
ALLEGAN MICHIGAN

**POWERFUL**

# TRU-STOP

## EMERGENCY BRAKE



"Brakes did not work"—there is no way to get around that alibi. When true it means danger to property, if not to life and limb. The wise owner of truck or bus installs Tru-Stop Emergency Brakes for these good reasons:

- 1.—Tremendously powerful—300 to 1 Leverage.
- 2.—Stoutly built to stand abuse.
- 3.—Simply, quickly, accurately adjusted by any mechanic or driver.
- 4.—Shoe replacement made with equal ease.

Tru-Stop Brakes are adapted to all standard makes of transmissions or can be mounted on frame crossmembers. Double

shoe for heavy service, single shoe for light service.

No lengthy or expensive servicing.



**AMERICAN CABLE COMPANY**  
INCORPORATED

AUTOMOTIVE DIVISION • BRIDGEPORT, CONNECTICUT

12-251 General Motors Building, Detroit, Michigan

An Associate Company of the American Chain Company, Inc.

## FWD Trucks

are available in sizes ranging in capacities from 2½ to 10 tons.


*Write for bulletin.*

The Four Wheel Drive Auto Co.  
Clintonville, Wis.  
Kitchener, Ontario, Canada

## LUCE MASTERCRAFT TRUCK BODIES

Production  
and  
Custom Built  
Body Equipment  
Vocationally Designed  
LUCE MANUFACTURING CO.  
Lansing, Michigan

*A Tight Connection All the Time*



**TRADEMARK**  
**NOC-OUT**  
THE  
HOSE CLAMP  
WITH THE THUMSCREW

Standard equipment hose clamp of the automotive and airplane industry. Your jobber has them.

4307 W. 24TH PL. **WITTEK**  
CHICAGO, ILL. MFG. CO.

## Catering to Canines

(CONTINUED FROM PAGE 24)

cents. A la carte menu offers beef hearts, beef liver, lamb, tripe, and tongue, fresh eggs, fish, and such bever-

ages as lime water, skimmed milk, goat milk, haliveroil, and broth. Fresh vegetable plates for vegetarians, of course! The business is now valued at about \$100,000, and in view of the fact, that birth control among dogs is not widespread, the outlook is promising.

"In retrospect," says Mr. Goff, "It occurs to me that if it were not for our trucks facilitating delivery to scattered customers, this business would not be economical. The potentialities of the business may best be judged from the fact that we have received inquiries for details from all over the country from people desiring to start a dog dinner business." In view of this statement, it would seem that truck salesmen would do well to encourage the idea, as it establishes an assured outlet for truck sales.

## Cut Costs With Chalk

(CONTINUED FROM PAGE 27)

"We work on a system of having the drivers cooperate with us in maintaining the fleet and keeping down costs. That's the only way to really keep costs from soaring. Every driver must be interested in helping out.

"Now the blackboards keep them interested. We have tried using bulletins and other methods of reaching the drivers, but nothing works like having the figures out where they can see them all the time. When they know that their name is going to be up and their record shown for an entire year, they'll try to get a good space on the blackboard—human nature is like that."

BY using the blackboard for shop-work, Doppelmayer has found that he eliminates a lot of book work which would take up his time and keep him from properly supervising the fleet. The blackboard "keeps books" for him during the week and shows him and his

## ONLY B.&J. TRAILERS HAVE GRAVITY SPRING SUSPENSION

*Write for bulletin*

B. & J. TRAILER CO.  
3915 S. Michigan Ave. Chicago



*Drive it*

Only a few minutes at the wheel will convince anyone that Marmon-Herrington all-wheel-drive trucks are first in performance—first in dollar-for-dollar value.

A complete all-wheel-drive line—5 series... 28 models... capacities 1½ tons and upward.

Write today for fully illustrated 16-page magazine—just off the press—giving you the detailed story of why Marmon-Herrington is first in the all-wheel-drive field.

**MARMON-HERRINGTON**  
Indianapolis, Indiana, U. S. A.

helpers what must be done daily. It is not necessary to consult a ledger record to find out which units need greasing and which need oiling, as the information is out in the open where all may see it.


"Cooperation is the main thing in keeping a fleet running properly," said Doppelmayer. "We also stress this by a blue card on which the drivers tell us what work is needed on their trucks. Instead of using a conventional report card, we use a card which carries the idea of cooperation. This card reads: 'Believing that if you and I cooperate in reporting and repairing the small troubles, the large ones will not occur, I wish to report that Truck No. — needs as follows:' Beneath this is a space for the driver's remarks."

# COUNT THE FRUEHAUFS *on the* ROAD

**MORE** convincing than all the sales talks—more conclusive than any printed claims—are these two facts: most haulers use Trailers—the big majority use Fruehaufs.

Before you buy any haulage equipment—judge by what others are doing. If you want economy—use Trailers. If you want utmost economy and satisfaction—use Fruehaufs.

Oldest and Largest Manufacturers of Trailers  
**FRUEHAUF TRAILER COMPANY**  
10957 Harper Avenue  
Detroit, Michigan  
Sales and Service in all Principal Cities



## FRUEHAUF TRAILERS

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